



CITY OF MANCHESTER.

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# REPORT

ON THE

Health of the City of Manchester,

1919.

BY

JAMES NIVEN, M.A., M.B., LL.D.

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MANCHESTER:

HENRY BLACKLOCK & CO. LIMITED, ALBERT SQUARE

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PUBLIC HEALTH OFFICE,  
MANCHESTER,

October, 1920.

MY LORD MAYOR, ALDERMEN,  
AND MEMBERS OF THE COUNCIL.

I have the honour to present to you my Annual Report on the health of Manchester for the year 1919.

It is longer than in other recent years, in accordance with the prescription of the Ministry of Health of the subjects to be included.

An endeavour has been made to preserve its character, and at the same time to observe the order of the subjects laid down in their Memorandum.

The year was marked out statistically by the occurrence of the third outbreak of Influenza, which caused no fewer than 1,127 deaths. This subject was dealt with in my Annual Report for 1918.

Notwithstanding this special cause of mortality, the general death-rate was the lowest yet attained.

A striking fall occurred in the death-rate from Tuberculosis. But the continued discharge of soldiers suffering from this disease does not permit of our being so sanguine as to a permanent or speedy reduction in the mortality as the figures would otherwise lead us to be.

A decided fall also occurred in the death-rate from Pneumonia.

The Diarrhoeal death-rate was also low.

From infectious diseases generally the death-rate was low, a fortunate event which cannot be expected to occur in every year.

On the other hand the death-rate from Cancer continues to rise.

For the first time the infant mortality rate has fallen below 100 per 1,000 births. This is about half what it was so late as 1890-92, and marks a great advance. But there is still much to be done in this field.

The subjects to which special attention have been given in the report may be stated to be occupational mortality, meteorological conditions, tuberculosis, venereal disease, maternity and child welfare, and the newer diseases now made notifiable.

Some important subjects are not treated in this report at all, such as Housing ; others are dealt with only slightly, for example, the Milk Supply. It is hoped that these may be more fully treated in the coming year.



Matters outside the scope of this report, but of much importance for public health, are the coming inclusion of Haweswater in the water supply of the City and district, the completion of the Town Planning Scheme for South Manchester, and the hoped for completion of the Main Sewerage of the City.

The increasing success of the Venereal Diseases Scheme is matter for congratulation, but the amount of information which we possess on this subject is by no means commensurate with the practical work being done.

It is hoped that next year it may be possible to chronicle the commencement of the Children's Sanatorium at Abergele, a great increase in the number of new houses erected, the establishment of a colony for persons suffering from Tuberculosis, and at least an increased amount of improvement in existing houses.

Maternity homes run by the Corporation are badly needed.

The question of an adequate and pure milk supply at possible prices becomes more urgent, and will tax the ingenuity and wisdom of the Council to deal with.

There is much that is unsatisfactory in the present outlook as it affects the public health, but unpromising outlooks may be made brighter if there is goodwill and a determination individually and collectively to put still more effort into the task.

Public work grows at a tremendous rate, with consequent evolution of Committees, and devolution of subjects. This is especially noticeable with regard to the Public Health Committee, on whose chairman, deputy-chairman, and members a very onerous task is placed.

In conclusion, I have to thank the Public Health Committee and the Council for their continued support, and my colleagues for their energetic and cordial assistance.

I am,

Your obedient Servant,

JAMES NIVEN.

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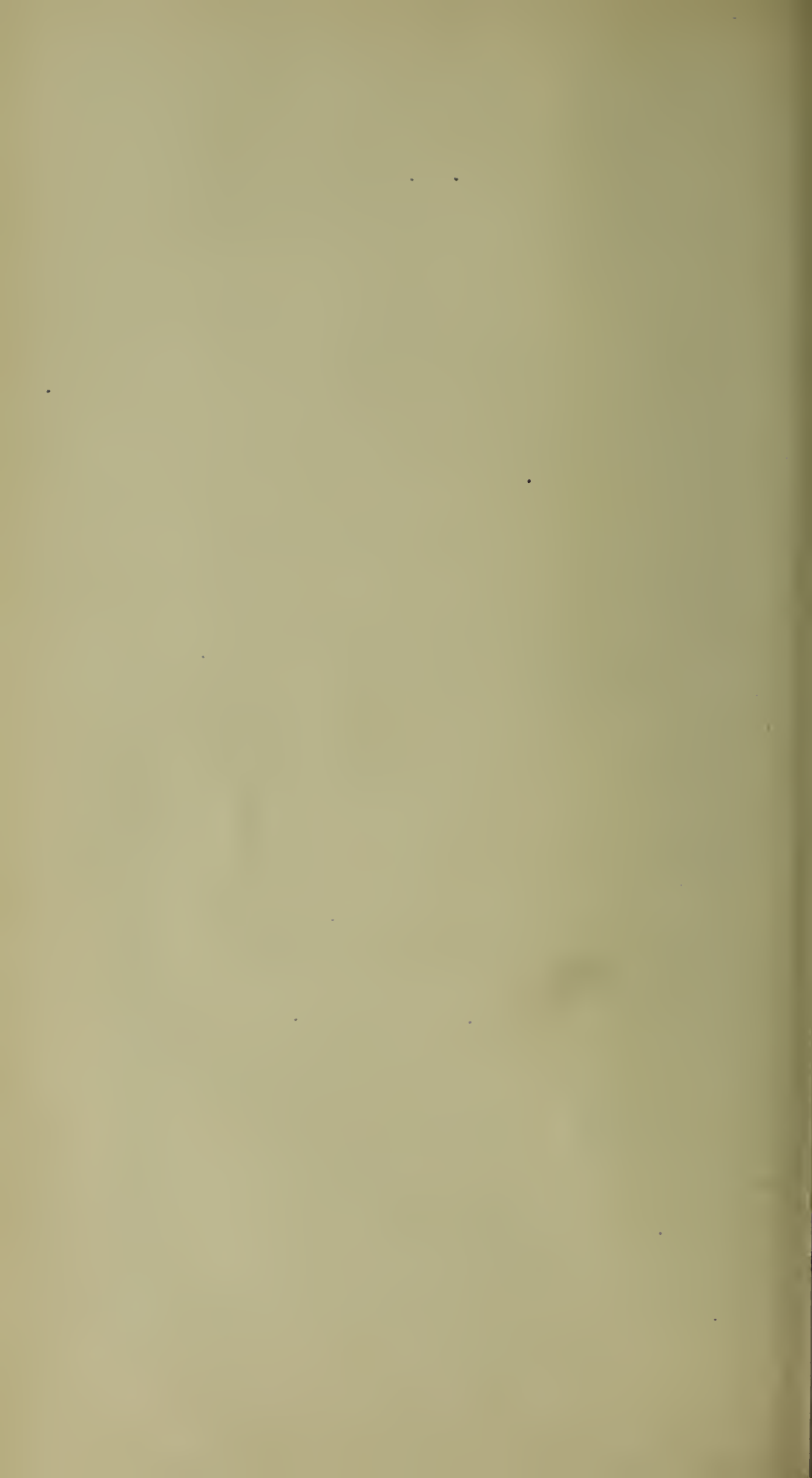
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# ANNUAL REPORT.

## STATISTICAL.

The following are general statistics for the year 1919 :—

Area of the City in acres .....	20,799
Estimated population at the { Males ..... 374,464 } middle of 1919 ..... { Females ..... 403,765 } .....	778,229
No. of persons per acre.....	38
No. of families or separate occupiers at the Census taking, 1911...	152,317
Persons married per 1,000 of population in the Manchester Union..	18·82
Births in the City of Manchester { Males ..... 7,221 } ..... { Females..... 6,711 } .....	13,932
Annual birth-rate per 1,000 of population .....	17·62
Deaths .. { Males ..... 5,553 } ..... { Females ..... 5,301 } .....	10,854
Recorded annual death-rate per { Males .... 14·83 } 1,000 of population..... { Females .... 13·13 } persons ...	13·73
Deaths under 1 year of age per 1,000 births .....	97·76
Excess of registered births over deaths .....	3,078
Percentage mortality occurring in public institutions.....	30·60
Registrar-General's estimated Civil population for calculation of death-rates .....	741,068
Registrar-General's estimated Civil population for calculation of birth-rate .....	771,973
Death-rate based on Civil population .....	14·65
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The chief causes of death during the year are shown below, compared with the corresponding figures for 1915, 1916, 1917, and 1918 :—

TABLE I.

	1915	1916	1917	1918	1919
Tuberculosis of the Lungs .....	1315	1238	1196	1103	951
Tuberculosis of Organs other than the Lungs .....	313	348	359	287	237
Diseases of the Heart .....	1163	1025	947	920	1050
Cerebral Hæmorrhage, Apoplexy, Hemiplegia.....	543	553	604	503	483
Pneumonia .....	1089	944	929	1421	977
Bronchitis .....	1278	1207	1097	1053	1277
Digestive Organs .....	517	454	396	360	397
Atrophy, Debility (chiefly in infants) .....	277	164	155	153	144
Old Age ....	520	429	439	413	464
Premature Birth... ..	350	317	262	280	324
Nephritis and Bright's Disease	369	335	307	275	275
Convulsions.....	58	74	74	61	56
Inflammation of the Brain .....	98	74	76	77	65
Diarrhœa and Dysentery.....	488	313	279	147	172
Measles .....	447	179	277	166	104
Scarlet Fever .....	83	35	15	21	26
Whooping Cough .....	70	300	49	330	40
Diphtheria .....	105	67	63	58	41
Influenza.....	136	133	98	2096	1127
Malignant Disease.....	775	794	770	806	875

The outstanding feature of this table is the terrible mortality from Influenza. There is also an increase in fatality from Cancer, as well as from Diseases of the Heart, Bronchitis, Old Age, and Premature Birth. On the other hand, a striking improvement is shown under Tuberculosis and infectious diseases. The lowest mortality from Tuberculosis of the Lungs before the war was reached in 1913, when the number of deaths was 1,055. In the same year the number of deaths from other forms of Tuberculosis was 383. Since that year there has been an increase, culminating in 1915. The high death-rate from Bronchitis is due to the third outbreak of Influenza. This affected also the mortality from Pneumonia, which otherwise would have been low. The mortalities from Measles, Scarlet Fever, Whooping Cough, and Diphtheria were all low, as was also that from Diarrhœa. This was also the case with respect to Bright's Disease and Apoplexy.

The following figures show the gains and losses in the death-rates in 1919 from a number of causes, as compared with the death-rates from the same causes over the average of the previous ten years :—

TABLE 2.

*Gains and Losses in 1919 per 1,000 persons living, as compared with the average for the 10 years 1909-1918—(See Table K).*

*Gains.*

Measles .. .. .	0·32
Scarlet Fever .. .. .	0·08
Whooping Cough .. .. .	0·25
Diarrhœal Diseases .. .. .	0·40
Diphtheria .. .. .	0·08
Enteric Fever .. .. .	0·04
Rheumatic Fever .. .. .	0·01
Phthisis .. .. .	0·41
Tubercular Diseases (other) .. .. .	0·20
Alcoholism.. .. .	0·03
Premature Birth .. .. .	0·09
Nervous Diseases .. .. .	0·20
Heart and Blood Vessel Diseases .. .. .	0·13
Pneumonia .. .. .	0·42
Respiratory Diseases (other) .. .. .	0·04
Digestive System .. .. .	0·16
Urinary System .. .. .	0·11
Total .. .. .	<u>2·97</u>

*Losses.*

Influenza .. .. .	1·01
Cancer .. .. .	0·11
Bronchitis .. .. .	0·03
Puerperal Fever .. .. .	0·01
Old Age .. .. .	0·02
Total .. .. .	<u>1·18</u>

Balance of Gain from Above Causes ..	1·79
„ „ „ „ All Causes .. .. .	2·39

Attention is called to the great gains under Tuberculosis and Pneumonia, as compared with the previous ten years. These, together, counterbalance the losses sustained under Influenza and Bronchitis. The gains under Alcoholism, Diseases of the Digestive System, and Urinary Diseases may, perhaps, be read together.



Table 3, which enables us to examine the death-rates in the different Sanitary Divisions and Districts, broken up into their constituent parts, according as the deaths occurred at home, in workhouse hospitals, or in other institutions, is given only for the three principal divisions of the City.

Underneath is given the percentage of all deaths occurring in public institutions since 1913 :—

Year	1913	1914	1915	1916	1917	1918	1919
Percentage .. ..	30·8	32·3	31·8	33·2	34·0	30·6	30·6

There was an intervening period between 1913 and 1918 when considerable stress of circumstances was experienced. The relationship is essentially one of poverty, temporary or permanent, and will be clear from the following figures:—

Figures showing the percentage dying in public institutions :—

Year	1912	1913	1914	1915	1916	1917	1918	1919
Manchester Township	40·6	41·7	42·0	40·7	44·8	46·6	39·8	41·5
North Manchester ..	21·2	23·6	25·2	24·0	26·2	27·1	24·2	25·2
South Manchester ..	28·8	29·3	32·0	31·4	31·5	32·1	29·3	29·7

TABLE 3.

1919.—DEATH-RATES\* IN THE HOMES OF THE PEOPLE, IN WORKHOUSES, AND IN HOSPITALS FOR THE VARIOUS DIVISIONS OF THE CITY.

STATISTICAL DIVISIONS	Estimated Populations to middle of 1919	Death-rate per 1000 of persons dying in their own homes	Death-rate per 1000 of persons dying in Workhouses	Death-rate per 1000 of persons dying in Hospitals	Total death-rate per 1000	Mean death-rate 1909-1918
City of Manchester. ....	778,229	9·53	2·08	2·12	13·73	15·95
I. Manchester Township..	100,310	12·49	5·38	2·89	20·76	23·99
II. North Manchester .....	228,673	8·62	1·06	1·85	11·53	13·57
III. South Manchester .....	449,246	9·33	1·87	2·08	13·28	14·98

\* In this table, every death occurring in a Public Institution has been referred to the District from which the patient originally came.

Table 4 shows that the male and female death-rates stand to each other in nearly the same relation as in previous years, the ratio of male to female death-rates being, however, reduced in 1918 and 1919.

TABLE 4.  
*Annual Death-rates—Male and Female.*

	Male	Female
1905 .. .. .	19·45	16·31
1906 .. .. .	20·65	17 47
1907 .. .. .	19·52	16·40
1908 .. .. .	19·87	16·47
1909 .. .. .	18·88	16 62
1910 .. .. .	17·37	14·51
1911 .. .. .	18·73	15·64
1912 .. .. .	17·68	14·79
1913 .. .. .	17·31	14·35
1914 .. .. .	18·36	15·28
1915 .. .. .	17·62	15·09
1916 .. .. .	15·53	13·68
1917 .. .. .	14·57	12·29
1918 .. .. .	16·34	15·33
1919 .. .. .	14·83	13·13

The figures given by the Registrar-General in his Annual Return enable us to institute a comparison with other large centres.

The figures do not always agree exactly with our local figures, for reasons given in previous reports. Probably, however, other centres are affected in the same way as Manchester.

INFANTILE MORTALITY.

Table 5 shows a steady tendency downwards of infantile mortality in recent years, a matter for congratulation.

TABLE 5.—INFANTILE MORTALITY.

*Deaths per 1000 births at the ages 0-2 months, 3-5 months, and 6-11 months, in successive years.*

YEARS	Months of Age			
	0-2	3-5	6-11	Under 1 year
1891-95 (mean) .. ..	82.79	40.99	62.97	186.75
1896-1900 (mean) .. ..	83.44	42.43	66.28	192.16
1901 .. .. .	88.90	42.96	66.60	198.46
1902 .. .. .	73.49	32.23	45.73	151.45
1903 .. .. .	79.91	36.37	52.25	168.53
1904 .. .. .	84.37	42.01	60.34	186.72
1905 .. .. .	78.42	34.05	46.28	158.75
1906 .. .. .	78.65	35.77	54.68	169.10
1907 .. .. .	73.91	30.46	43.07	147.44
1908 .. .. .	76.20	30.09	46.16	152.45
1909 .. .. .	73.20	25.37	36.98	135.55
1910 .. .. .	67.50	23.90	40.44	131.84
1911 .. .. .	79.50	31.81	44.80	156.11
1912 .. .. .	65.31	19.70	37.26	122.30
1913 .. .. .	68.76	24.42	35.52	128.70
1914 .. .. .	68.19	23.16	37.28	128.63
1915 .. .. .	64.38	22.83	41.43	128.64
1916 .. .. .	61.55	18.50	31.22	111.24
1917 .. .. .	60.20	18.77	32.32	111.29
1918 .. .. .	52.59	20.37	33.77	106.73
1919 .. .. .	58.88	13.86	25.05	97.76

It will be seen that the most marked improvement in 1919, as compared with 1918, occurred in the last nine months of the first year of life, the mortality in the first three months having again risen after showing great improvement in 1918. Nevertheless, for 1919, the rate of mortality per 1,000 births passed below 100, but the circumstances were exceptionally favourable, the rates being low for measles, whooping cough, and diarrhœa.

The following are figures showing the deaths under one year from a number of causes. The number of deaths from Syphilis is not high, but the subject is one of exceptional interest.

The deaths in the first year per 1,000 births since 1912 are given underneath:—

Year	1912	1913	1914	1915	1916	1917	1918	1919
Deaths per 1,000 births from Syphilis .. .. }	2.1	1.9	2.8	2.4	3.9	3.9	2.2	3.0

It will be seen that we have not yet returned to normal conditions, whereas Congenital Syphilis ought now to decline.

TABLE 6.—INFANT MORTALITY.

*City of Manchester.*

1919.—Deaths from stated causes at various Ages under 1 Year of Age.

CAUSES OF DEATH		Under 1 week	1-2 weeks	2-3 weeks	3-4 weeks	Total under 4 weeks	4 weeks and under 3 months	3 months and under 6 months	6 months and under 9 months	9 months and under 12 months	Total Deaths under 1 year
causes	Certified .. ..	325	93	65	53	536	207	181	161	171	1,256
	Uncertified .. ..	54	2	4	3	63	14	12	8	9	106
Small-pox .. ..		..	..	..	..	..	..	..	..	..	..
Chicken-pox .. ..		..	..	..	..	..	..	..	..	..	..
Measles .. ..		..	..	..	..	..	..	2	6	18	26
Scarlet Fever .. ..		..	..	..	..	..	..	..	..	..	..
Whooping Cough .. ..		..	..	..	..	..	2	3	3	5	13
Diphtheria and Croup .. ..		..	..	..	..	..	..	..	1	3	4
Erysipelas .. ..		..	..	..	..	..	1	..	..	..	1
Tuberculous Meningitis .. ..		..	..	..	..	..	..	..	4	9	13
Abdominal Tuberculosis .. ..		..	..	..	..	..	1	..	4	1	6
Other Tuberculous Diseases .. ..		..	..	..	..	..	..	2	3	2	7
Meningitis (not Tuberculous) .. ..		..	..	..	..	..	3	4	..	7	14
Convulsions .. ..		15	14	1	..	30	6	7	1	6	50
Coryngitis .. ..		..	..	1	..	1	..	..	..	..	1
Bronchitis .. ..		..	3	3	5	11	29	30	27	20	117
Pneumonia (all forms) .. ..		2	2	1	2	7	18	24	59	56	164
Diarrhoea .. ..		..	2	1	..	3	16	11	12	4	46
Enteritis .. ..		1	5	6	8	20	32	21	11	4	88
Gastritis .. ..		..	3	1	..	4	5	5	1	2	17
Syphilis .. ..		1	4	6	4	15	13	8	1	5	42
Ecticks .. ..		..	..	..	..	..	..	1	..	3	4
Suffocation, overlying .. ..		10	..	3	..	13	6	3	3	..	25
Injury at birth .. ..		30	3	..	..	33	..	..	..	..	33
Pneumothorax .. ..		21	2	2	1	26	1	..	..	..	27
Congenital Malformations .. ..		28	9	4	3	44	9	2	5	2	62
Premature Birth .. ..		222	31	21	19	293	25	6	..	..	324
Strophy, Debility, and Marasmus .. ..		39	8	12	12	71	33	25	5	4	138
Other Causes .. ..		10	9	7	2	28	21	39	23	29	140
Totals .. ..		379	95	69	56	599	221	193	160	180	1,362

Nett Births in the year { legitimate, 12,980.  
 { illegitimate, 952.

Nett Deaths in the year of { legitimate infants, 1,211.  
 { illegitimate infants, 151.

The behaviour of Tuberculosis should be noted. Almost absent as a cause of death in the first six months, it becomes formidable in the last six months. The infection has had time to develop. The manner in which the deaths under one year due to this cause have declined is very striking.

Year	1912	1913	1914	1915	1916	1917	1918	1919
Deaths from } Tuberculosis } under 1 year .. }	65	89	77	59	40	37	26	26

As this cannot be due mainly to improvement in the milk supply, it would seem as if much more care is being taken to avoid human infection.

Tuberculous Meningitis and Meningitis (other than Tuberculosis) are important causes of death, not so much because of the numbers concerned as because they furnish a clue to the presence and abundance of infections from other causes. Thus Pneumonia, Sepsis, and Cerebro-Spinal Fever produce forms of Meningitis, clinically not distinguishable, in which the diagnosis can be generally cleared up by examining cerebro-spinal fluid, and, where this fails, and the patient dies, by post-mortem examination. The history of the illness in Tuberculous Meningitis usually suffices to separate the case clinically from the other diseases named. But the value of the clinical opinion is increased by the examination of cerebro-spinal fluid. It is very desirable that the character of the meningitic infection should be specifically defined for purposes of prevention. There is undoubtedly much doubt as to the character of attacks of Meningitis, so that there is no clear distinction between Tuberculous and other Meningitis in reality, though there is in vital statistics. Such a clear distinction, however, is needed for administrative and prophylactic purposes.

In regard to Tuberculosis, it is of importance for purposes of prevention to ascertain by what channel the infection enters in the case of infants. The number of cases is too small for any one year to base any reasoning upon, but the Registrar-General's Annual Report for 1918 (Page 74) supplies large enough figures.



Form of Disease	Ages at Death			
	Under one month	0-2 months	3-5 months	6-11 months
Pulmonary Tuberculosis (not acute)	..	7	22	68
Pulmonary Tuberculosis (acute) and Miliary Tuberculosis	I	14	15	44
Tuberculous Meningitis .. ..	8	49	148	351
Tuberculosis of the peritoneum and intestines	11	77	132	194
Tuberculosis of the Spinal Column	..	..	I	3
Tuberculosis of Joints .. ..	..	..	I	2
Disseminated Tuberculosis ..	4	27	31	67

These figures strongly suggest that in the case of young children the usual channel of entry of tuberculous infection is by some part of the intestinal tract, and that the infection of the brain, lungs, and other parts is secondary.

It will be seen that in the last six months of the first year the number of deaths from tuberculous meningitis much exceeds the number of deaths from abdominal tuberculosis. The correspondence need not be a very close one, since the dissemination of infection often takes place from abdominal lesions of a minor character, many of which subside and give no further trouble. It thus happens that, even if all the cases of tuberculous meningitis are due to abdominal tuberculosis, there need not be a close correspondence. The figures throw no light on the origin of these cases, since infection of the intestine could quite well be derived from handling of the child's mouth by a tuberculous mother, from tuberculous fæces on the floor, from the mother's dress, etc., and so need not be derived from cow's milk. An enquiry, of an imperfect character, which I formerly had carried out, seemed to show that a distinction might be clinically made between the two classes of infection, a healthy infant of non-tuberculous parents being presumably infected by milk, and an ailing infant of a tuberculous mother from the mother or other member of the family. The difficulty is uncertainty of diagnosis.

From Table 7, given below, we are able to see the course of events in recent years other causes.

TABLE 7.  
CITY OF MANCHESTER.

CAUSES OF DEATH	DEATHS UNDER ONE YEAR PER 1,000 BIRTHS							Average
	1913	1914	1915	1916	1917	1918	1919	
All causes .. .. .	128.73	128.64	128.63	111.24	111.29	106.73	97.76	111.7
Smallpox .. .. .	..	..	..	..	..	..	..	..
Chickenpox .. .. .	0.11	..	..	0.13	..	..	..	..
Measles .. .. .	3.68	3.53	6.26	2.70	5.22	3.10	1.87	..
Scarlet Fever .. .. .	0.11	0.21	0.30	0.13	0.08	..	..	..
Whooping Cough .. ..	3.26	6.26	1.74	6.93	1.32	6.89	0.93	..
Diphtheria and Membranous Croup	0.42	0.63	0.60	0.26	0.47	0.31	0.29	..
Erysipelas .. .. .	0.27	0.16	0.06	0.06	0.08	0.08	0.07	..
Tuberculous Meningitis ..	1.83	1.50	1.08	0.64	1.95	0.77	0.93	..
Abdominal Tuberculosis ..	1.63	1.44	1.20	0.91	0.86	0.93	0.43	..
Other Tuberculous Diseases	1.20	1.17	1.26	1.03	1.33	0.31	0.50	..
Meningitis ( <i>not Tuberculous</i> )	1.56	1.60	1.38	0.96	1.17	1.39	1.01	..
Convulsions .. .. .	3.10	3.53	2.59	3.66	4.44	3.56	3.59	..
Laryngitis .. .. .	0.21	0.11	0.12	0.06	..	0.08	0.07	..
Bronchitis .. .. .	8.88	8.57	10.05	11.31	9.20	9.91	8.40	..
Pneumonia (all forms) ..	14.32	16.16	15.53	12.65	10.90	16.11	11.77	..
Diarrhœa .. .. .	9.98	7.97	7.71	3.33	6.55	7.43	3.30	} 10.7
Enteritis .. .. .	12.70	14.12	13.49	10.60	8.96		6.32	
Gastritis .. .. .	2.19	2.03	2.34	1.35	1.64	1.63	1.22	..
Syphilis .. .. .	1.94	2.84	2.41	3.92	3.90	2.17	3.02	..
Rickets .. .. .	0.69	0.58	0.72	0.44	0.55	0.08	0.29	..
Suffocation .. .. .	4.46	3.90	2.89	3.34	3.81	1.70	1.79	..
Injury at birth .. .. .	1.57	2.03	2.95	2.25	2.18	1.16	2.37	..
Atelectasis .. .. .	3.20	1.71	1.44	1.79	1.25	1.32	1.94	..
Congenital Malformation ..	3.99	3.26	4.09	3.79	5.46	3.41	4.45	..
Premature Birth .. .. .	20.42	21.87	21.07	20.36	20.41	21.68	23.26	21.8
Atrophy, Debility, and Marasmus	16.96	15.03	15.65	9.82	11.61	11.23	9.91	11.6
Overlying and found dead in bed	5.1	4.5	3.6	3.9	4.4	2.0	2.7	..
Other causes .. .. .	10.02	8.40	11.62	8.81	8.02	11.46	10.05	..

The mortality rate from convulsions under one year is practically stationary for the last seven years, following on a great decline. This condition occurs in connection with infectious diseases generally at the outset of the disease, from Diarrhœa at its conclusion, also in association with gastric derangement, or simply from faulty evolution of the brain and other organs. It should, therefore, have been comparatively low last year, except that Influenza was excessively prevalent. Apparently, however, general digestive disturbance plays a great part in the production of convulsions after the commencement of life. From Bronchitis and Pneumonia there is a marked reduction, showing probably what the course of events would have been at higher ages had Influenza been as little productive of these conditions at older ages as in infancy. No doubt the lowered incidence of severe attacks of Measles contributed somewhat to this result. The death-rate from Gastritis was low, as were also the death-rates from Diarrhœa and Enteritis.

It will be seen that the mortality rates for Diarrhœa and Enteritis were both low in 1918 and 1919 as compared with previous years. This is probably due to the trouble taken to secure frequent and complete emptying of collections of horse manure during the last few years. The rate for Rickets was low as compared with other previous years, but high as compared with that for 1918. It is to be hoped that this corresponds to better feeding of infants, but it is too soon to rejoice over the improvement shown. From antenatal and natal injuries, injury at birth, atelectasis, congenital malformations, and prematurity, the mortality rates are higher, showing that the improvement attained does not extend further back than birth, and that we have so far made no impression in this field of work. These failures, however, are due to antenatal causes. From "overlying and found dead in bed" there is a marked improvement, pointing, again, to diminution of alcoholism. The improvement shown under atrophy, debility, and marasmus is in all probability due to improved methods of feeding, and to the care bestowed on these conditions by the Babies' Hospital and other institutions, and by the Medical Profession generally. Much credit is due also to the work of the Child Welfare Department.

In 1919 the birth-rate rose somewhat, being 17·62 per 1,000 for the City. Illegitimate births constituted 6·8 per cent. of the total. The increase of illegitimacy is shown below :—

Year	1912	1913	1914	1915	1916	1917	1918	1919
Illegitimate births } —per cent. of total }	4·1	4·0	4·2	4·3	4·3	5·8	6·8	6·8

There is generally believed to be a great increase in laxity as regards sexual matters. If this had no other disadvantage, it would have that of an increase in evasion and trickery.

As usual, the birth-rate was higher in the Manchester Township than in South Manchester, and lowest in North Manchester. When we refer to the Annual Reports for 1912 and 1913, we find that the relations of North and South Manchester are reversed. It is to be hoped that North Manchester will improve in this respect, as no class of the community is so important to the welfare of the City as the industrial population. The illegitimacy rate was highest in Chorlton-upon-Medlock, Moss Side, Moston, Central, and St. George's.

So far as individual districts are concerned the natural rate of increase was highest in Bradford and Beswick in North Manchester, and in Openshaw and Gorton in South Manchester, so that relatively the industrial classes continue to hold their own.



The highest rate of infantile mortality in 1919 was experienced in the Manchester Township, 118, the rate in South Manchester being 94 and in North Manchester 92. As regards individual districts the following had rates over 100 : St. George's 121, Ancoats 118, and Central 106, all in the Manchester Township. In North Manchester, Beswick had 122, Moston 102. In South Manchester, Hulme had 130, Ardwick 110, and Chorlton-upon-Medlock 101.

A comparison is instituted between the three main divisions of the City as regards individual causes of mortality. As usual, the Manchester Township had the highest rate from measles, North Manchester coming next. From whooping cough the Manchester Township had much the lowest mortality. From other common infectious diseases South Manchester had the highest death-rate. The connection between insanitary conditions and a high mortality rate from measles has often before been the subject of comment. From diarrrhœal diseases, again, as usual, the Manchester Township has the highest rate, South Manchester coming next. The same relation holds for tuberculous disease in infancy. From convulsions the highest rate is in South Manchester. From lung diseases the Manchester Township has considerably the highest rate, North Manchester being second. From premature birth the same relative positions hold, as also from atrophy and wasting diseases. Under the heads "suffocation" and "found dead in bed" much the highest rates were experienced in the Township, and, in the aggregate, much the lowest in North Manchester. From tuberculous disease the highest rate is in the Township, while South Manchester has a much higher rate than North Manchester.

As regards sanitary conditions and general habits of life, North Manchester has, on the whole, the advantage over the other two main divisions, notwithstanding the dilution of South Manchester by healthy residential areas.

*Mortality statistics for higher and all ages.* In considering these we may take first *the death-rates at all ages*. The general death-rate of the City, notwithstanding the epidemic of Influenza, is considerably below that for any previous year. Provisionally, this may be put down to the restrictions imposed on the sale of alcoholic liquors and to their high price. There is no other cause adequate to explain the fall. Table G sets forth the death-rates for the whole City, for each of its main divisions, and for individual sanitary districts. But it must be stated that considerable doubt attaches to each population, and therefore to each death-rate.

As usual, the death-rate in the Manchester Township is much higher than the death-rates in the other two divisions, being nearly double that in North Manchester. The individual districts in the Township have each a death-rate exceeding 20 per thousand persons living. In South Manchester the highest death-rates are in Chorlton-upon-Medlock 18·65, Hulme 18·46, Ardwick 14·80, and West Gorton 14·64. In North Manchester the highest death-rate is in Bradford 13·30.

A high death-rate has often been associated with crowding on area. If we have regard only to the main divisions of the City, this thesis would seem to be maintained. When, however, we come to individual districts it is found not to hold. Thus Beswick, in North Manchester, has 130 persons to the acre, death-rate 12·86; Hulme 127, death-rate 18·46; Moss Side 96, death-rate 12·10; Harpurley 96, death-rate 12·42; Ancoats 93, death-rate 20·25; Bradford 92, death-rate 13·30; St. George's 91, death-rate 20·91; Levenshulme 46, death-rate 8·73; Withington 12, death-rate 11·06; Blackley 10, death-rate 11·34; Central 21, death-rate 21·48. The fact is that the term "crowding on area" needs careful definition relative to other conditions, and even when that is done the position cannot be maintained in its bald form. So much depends on the manner in which the area is used to secure internal convenience and comfort, and so much on its tradition, social habits, and sanitation.

Table K in the Appendix gives the death-rates from all causes, and from special forms of disease, for the whole City and for each of its main divisions for the year 1919, and for the ten years 1909-18. If we compare first the death-rates for the whole City for 1919 with the average for ten years, we see that great advances have been made, some of a permanent, some of a temporary, character. Of a permanent character are those observed under Enteric Fever, Diarrhœa, Tuberculosis, Alcoholism, Pneumonia, Diseases of the Digestive Organs, Diseases of the Urinary Organs, and Nervous diseases. The diseases more especially associated with alcoholic excess are Urinary Diseases, Diseases of the Digestive Organs, Pneumonia, Phthisis, Nervous Diseases, Alcoholism. Hence the great gain achieved can only be maintained at a price. Other gains occur in respect of Measles, Whooping Cough, Scarlet Fever, and Diphtheria. These are, of course, more precarious. Cancer continues to advance, and as yet no light has been thrown on its causation. It is, however, possible that the diminution of alcoholic excess will in time affect this cause of death. Possibly the removal of other digestive irritants may assist. No improvement appears under Puerperal Fever, a fact which should receive the careful attention of the Medical Profession. There is not much improvement as regards cardiac diseases, which might be supposed to be one of those causes of death especially associated with alcoholism. But the term as used here is too vague, and our attention should be confined in this connection to Apoplexy.

Nearly every cause of death operates most severely in the Township, but there are certain diseases in which the excess is especially conspicuous. These are Bronchitis, Pneumonia, Nervous Diseases, Premature Birth, Alcoholism, Tuberculosis, Influenza, Diarrhœa, and Measles. With the exception of the last two, these are all diseases which are sensitive to the operation of alcoholic excess, and there can, in fact, be little doubt that this factor plays a distinct part in causing the excessive death-rate of the Central area. Indirectly, also, Measles and Diarrhœa come into association.

From nearly all the causes of death enumerated South Manchester has a higher rate than North Manchester. This is notably so as regards Rheumatic Fever and Heart Disease, Diseases of the Digestive, and Diseases of the Urinary Organs. But it is not the case in respect of Bronchitis and Pneumonia. From Alcoholism the rates are equal. It appears probable from this table that Alcoholism is more injurious in South Manchester than in North Manchester. It does not follow that it is more prevalent. Its injurious effects are probably least manifest when the amount of physical effort is greatest.

It is, however, only marked differences that can be taken into account, since all deaths are not registered by practitioners, and a certain want of precision is always present. Table L in the supplement throws some light on the extent of this failure. If we compare this table with those for 1912, 1913, and 1914 we find that the proportion of deaths certified by practitioners is higher in 1919 than it is for those years, while the proportion certified by the Coroner is much smaller. On the other hand the proportion not certified at all has considerably increased. This increase is general, and would seem to indicate that there is less activity shown in holding Coroner's inquests than was formerly the case. The diminution in the number of inquests, on the other hand, may, in part, be due to diminution in deaths from violence. This is, of course, very easily settled. The following were the deaths due to various forms of violence, of which the first six are to be taken as accidental:—

Deaths from	1912	1913	1914	1915	1916	1917	1918	1919
Various accidents, including falls	125	155	178	182	180	164	125	131
Burns and Scalds ..	64	82	76	76	91	99	62	56
Poisons, poisonous vapours	13	9	10	10	4	12	13	9
Drowning .. ..	40	42	41	43	42	35	29	30
Suffocation .. ..	121	104	96	66	67	59	26	44
Otherwise or not stated	28	33	37	28	28	23	28	26
Homicide .. ..	7	7	9	5	6	5	2	3
Suicide .. ..	73	68	67	43	26	33	36	50
Total .. ..	451	500	514	453	444	430	321	349

It will be seen that there has been a great fall in the number of deaths from suffocation, nearly all of infants, and a decided fall under the heads of drowning, homicide, suicide, and accidents generally. This may quite well account for the diminished number of inquests. The character of the diminution also points to diminished alcoholic excess.



The ideal termination of life is perhaps "old age," a term which connotes a decay of all the faculties, generally peaceful. Even under this name, death often occurs by unequal incidence on some one of the organs. Other causes of death ally themselves to old age in this that the maximum numbers of deaths occur at those periods at which old age might be expected to supervene. Such are heart disease, disease of the blood vessels, and bronchitis, in which the maximum mortality occurs at ages 65-74. The machinery has given way sooner. They differ from old age in this that the end is not peaceful, and the breakdown occurs in a large proportion of cases earlier. When the maximum occurs at an earlier period we have either to do with a departure from the normal, or else with the introduction of special causes. Such is the case with cancer, at which the maximum mortality occurs from 55 to 64, and Bright's disease. In the first we have to do with a specific growth intruded into the system like a gall-nut, and in the second we have the natural decay of the kidneys hastened by alcoholism and other forms of disease. Both are accordingly spread out over a considerable portion of life. This is also the case with heart disease, in which, however, heart failure is mixed up with the effects of rheumatic fever and septic disease, and with bronchitis, in which the term covers not only the decay of the system, but the sequelæ of many infectious and other diseases. Where disease reaches its maximum at an earlier period we have to do with an infectious disease. Thus Influenza is fatal at all periods, but attains its maximum at 25-34. Phthisis is most fatal at ages 35-44, in men at ages 35-54, in women at ages 35-44, females having recently approached males in the age period. Pneumonia is most fatal in 1919 at ages 45-54, though it maintains a high prevalence at ages 25-64. The diseases most costly to the community are Phthisis and Pneumonia, and in 1918-1919 Influenza. The earlier in adult life after 35 a disease is fatal the more costly it is, both by loss of life value and by loss to the children. Men, on the average, are a greater loss than women from the economical and also from the man power standpoint. In determining the character of the losses sustained in 1919 we therefore note the ratios of male to female deaths. There were from Influenza, in 1919, 551 male against 576 female deaths; from Phthisis 545 male, 406 female deaths; from Pneumonia 522 male, 455 female deaths. All of these diseases are therefore very costly, Phthisis in the character of its fatality especially so.

But in 1919 the relation of the sexes was very different from what it used to be. Thus in 1912 there were from Phthisis 699 male deaths, 408 female; from Pneumonia 787 male deaths, 571 female. In 1913 there were from Phthisis 624 male deaths, 432 female; from Pneumonia 708 male deaths, 470 female. The proportion of male to female Phthisis deaths has, thus, much diminished, while the number of female deaths is not materially reduced. From Pneumonia male deaths have greatly diminished, from female deaths moderately.

The suggestion is that the male death-rate is largely of an easily controlled character. Pneumonia is now a notifiable disease, and cases are being investigated. The investigation is in its infancy, and notification so far has been most imperfectly carried out. It is necessary to realise that this disease is going to require an administration comparable with that under Tuberculosis though not so costly. As the work progresses this will become manifest.

The approximation of female to male deaths in Manchester is due not merely to improvement in the male death-rate, but also to females not sharing equally in the improvements which have taken place, owing to the heavier share of the work which they have now taken, and are likely to continue to take. It is partly an outcome of the war, and carries considerable potentialities.

The materials for a comparison with other localities are not to hand for 1919, and this is, therefore, omitted.

Similarly an analysis of the mortalities in age periods is not given in the form of death-rates. The figures are too uncertain, and will continue to be so until a fresh census has been obtained.

### METEOROLOGY, SOIL, &c.

Manchester and Salford lie in a basin in the south-east corner of Lancashire embraced to the north, east, and south by the Pennine Range, and surrounded by a number of industrial centres whose chief productions are coal, machinery and cotton goods.

They are traversed by the Irwell, the Irk, the Medlock, and a number of small brooks, and their suburban districts stretch out to the Mersey. While rising towards the north, their surface is otherwise flat.

The Town Hall, Manchester, is situated in N. Lat.  $53^{\circ} 28' 44''$  and W. long  $2^{\circ} 14' 34''$ . The mean elevation of the City above ordnance datum is 189 feet, the greatest elevation being 348 feet in Blackley and the least 80 feet in Cornbrook Road.

The geological strata consist of boulder clay, drift, sands and gravels, overlying a series of strata which dip westward from the Pennine Range. These are the new red sandstone, the Permian rocks, the upper middle and lower coal measures, and underneath these the millstone grit, Yoredale shale, limestone and carboniferous limestone.

The strata are reached in the reverse order as we descend from the hills about Saddleworth through Oldham; first the millstone grit, then the lower then the middle coal measures, and finally the upper coal measures, which lie at a considerable depth below the surface in Manchester and Salford.

A map of the surface geology of Manchester was published in the Manchester Literary and Philosophical Society's Memoirs, 1847. This shows that a shallow section carried from Broughton in Salford to Openshaw in Manchester passes almost entirely through drift clay.

Along the valleys of the Irwell, Irk, and Medlock the surface is composed of river gravels, as well as over the district of Hulme. To the north, on the surface of Broughton, Crumpsall, Blackley, and Harpurhey lie middle gravels and sands.

The greater part of the surface of Manchester and Salford, however, is constituted by the fringe of the great drift clay deposit which covers the plain of Cheshire.

When a wind-rose is formed for five years, we find that the prevailing wind is from the west.

But the more common directions may be divided into three groups due West 68, N. to W.N.W. 83, and S. to W.S.W. 62. These are the directions on the side opposite to the Pennine Range. The remaining directions between N. and S. through E. number 48.

The rainfall in Manchester is considerable, the westerly winds, as they come from the sea, heavily charged with moisture, discharging part of their contents before they reach the hills.

This is due, in part, also to the cooling effect of the Pennine hills on clouds coming from the north to the south, and from east to west.

The degree of humidity is high in proportion to the rainfall, and the atmosphere is thus specially favourable to the cotton industries of Manchester, Salford, Stockport, Oldham, Rochdale, Bury, Bolton, and Blackburn.

The water condensed on the surface of the Pennines is a pure, palatable, and soft drinking water, and the towns on both sides of this range take their supplies from this source.

As is well known, Manchester also derives its water from Thirlmere Lake. The Longdendale and Thirlmere waters are of similar character.

There is great interference with the transmission of light by the atmosphere of Manchester and Salford, as is seen on a comparison of the hours of sunshine which they enjoy as compared with Stoneyhurst, Southport, Blackpool, and Rhyl. This is chiefly due to the amount of black smoke present in the atmosphere. Manchester is especially afflicted, as it receives Salford smoke from the west, Stockport from the south-east, Oldham and Ashton from the east, Rochdale from the north-east, and Bury and Bolton from the north.

In the Proceedings of the Manchester Field Naturalists' and Archæologists' Society for the year 1892 is recorded a comprehensive investigation into the condition of the atmosphere. The amount of sunlight was measured at a number of stations by its chemical action, and it was ascertained that the chief agent in the interception of light is smoke from the burning of coal. It was concluded that smoke from house fires does most of the mischief. The



amount and character of the deposit on newly fallen snow were determined, as well as the causes of the destructive action of this deposit on vegetation, and presumably also on human beings.

The diminution of sunlight in passing through the atmosphere is greatly intensified by the numerous fogs which beset parts of the City.

In 1804 to 1810 there were 24 fogs; in 1825 to 1827, 49; in 1891-1900, 416 fogs and 436 hazes; in 1901-1910, 234 fogs and 176 hazes; in 1911-18, 83 fogs—or 10·4 per annum.

In recent years there have been fewer fogs, a fact due perhaps in some measure to the speed with which rain water is carried off by the sewerage system.

This is all the more remarkable, as there was necessarily great relaxation of the control exercised over the emission of smoke during the war. Otherwise the Manchester Corporation has strenuously endeavoured to keep down smoke.

Specially injurious and noxious forms in which smoke has been emitted is by road engines, which have been exempted from control, from low chimneys near houses, and from office chimneys in the central district.

The atmospheric temperature in the shade is comparatively high, a fact of importance in connection with the incidence of summer diarrhœa. Nevertheless Manchester gives the impression of being a cold town, due no doubt to the excess of moisture the evaporation of which is carried out at the expense of persons at ground level. The daily range of temperature is high compared with that of seaside towns on the sand, but is lower than for Birmingham or Hull.

The effects of weather conditions on vegetation and human health, year by year, are manifest. To what extent the special meteorological conditions in Manchester are mainly responsible for the high death-rate is not clear, when we note the low death-rates in some of the outskirts, and the great drop which has occurred in the death-rate since 1870.

The meteorological conditions, however, are the same. But it is certain that meteorological conditions acting over the country generally produce great differences in the death-rates from year to year, and also that those pertaining to Manchester are specially injurious. This influence is a partial one, and its extent is obscured by its generality.

These observations are illustrated by the following tables.

Table I. gives for the ten years 1910-1919, monthly and yearly, the average daily mean temperature in the shade, the average daily range of temperature, the average humidity per cent., the average rainfall, the average monthly and annual number of hours of sunshine, and for the years 1881-1915 the same at Stoneyhurst.

## METEOROLOGY, 1910-1919, MANCHESTER. (299 Oldham Road.)

	January	February	March	April	May	June	July	August	September	October	November	December	Year (Mean)
Average daily atmospheric mean temperature in the shade . . .	40.0	41.1	42.6	46.8	55.0	58.6	61.2	61.2	56.7	50.1	43.3	42.2	49.9
Average daily range of temperature .	7.1	7.8	10.6	12.7	15.1	14.0	13.3	12.4	11.6	9.7	7.9	7.2	10.8
Humidity per cent. (9 a.m.) . . .	88	85	83	79	74	72	74	79	80	84	87	88	81
Average monthly and annual rain-falls . . .	3.245	2.485	2.879	1.966	2.322	2.503	2.862	3.954	2.704	3.059	3.133	4.428	(Total) 35.440
Average monthly and annual hours of sunshine . .	12.32	28.67	70.88	118.84	147.96	153.41	139.67	115.79	110.32	53.71	17.28	6.84	975.69
Average monthly and annual hours of sunshine at Stonehurst, 1881-1915 . .	32.86	58.52	105.09	150.00	186.93	185.10	175.15	150.97	126.90	84.01	47.10	25.11	1327.74



The above table is inserted for comparison with a similar table prepared in 1902, also for ten years.

The average mean temperature is slightly higher in 1910-1919.

The average daily range is somewhat lower. Humidity per cent. is slightly higher. The average rainfall is nearly 2 inches higher. The average number of hours of sunshine is lower by over 100 hours both at Manchester and Stoneyhurst. There is no evidence of atmospheric improvement in these figures.

The following tables 2, 3, 4, and 5 are extracted from the Book of Normals of Meteorological Elements published by the Meteorological Committee, and relate to the averages of the years 1881-1915.

Table 2 gives the average percentage of possible sunshine in months and years for Manchester, and various other localities.

It will be noted that the percentage of Manchester is above that of Hull only, and is equal to that of Glasgow, Birmingham coming next, though only a little better.

The position of Sheffield is surprisingly good. But this is no doubt due to the position of the Meteorological Station, which is 429 feet above sea level. As compared with Blackpool, Southport, and Rhyl, Manchester loses one-third of its possible sunshine. We must however avoid drawing the conclusion that this is due to smoke entirely.

We note that Stoneyhurst enjoys only 30 per cent. of possible sunshine due no doubt to its proximity to hills, and the consequent amount of clouds. To some extent Manchester also suffers from this cause.

It is to be observed that, although Glasgow enjoys only the same percentage of yearly sunshine as Manchester, the distribution is different. In particular in November, December, and January Manchester has only 8, 6, and 7 per cent. of possible sunshine, while Glasgow has 11, 7, and 9 per cent., and Birmingham 15, 12, and 13 per cent.

It can hardly be doubted that in these dark and dismal months the health of Manchester suffers especial damage.

It is difficult to account for the low percentages enjoyed by Hull, and the absence of any clear evidence to the contrary one would incline to ascribe it to black smoke. (It appears, however, that instrumental error may account for this).

TABLE 2.

AVERAGE ANNUAL PERCENTAGE OF POSSIBLE SUNSHINE, 1881-1915.  
(BOOK OF NORMALS.)

Percentage of Possible Sunshine	January	February	March	April	May	June	July	August	September	October	November	December	Total
Manchester .. .. .	7	15	20	28	31	32	30	28	28	20	8	6	24
Stoneyhurst .. .. .	13	21	29	36	38	36	34	33	33	26	18	11	30
Blackpool .. .. .	19	27	35	42	45	44	41	40	38	30	22	16	36
Southport .. .. .	19	26	34	41	44	43	40	39	37	29	21	16	35
Rhyl .. .. .	26	28	37	42	45	42	40	40	39	32	26	21	37
Birmingham .. .. .	13	18	23	29	31	30	30	32	29	21	15	12	25
Hull .. .. .	7	15	22	26	28	26	28	28	26	20	13	5	22
Sheffield .. .. .	16	23	28	34	35	34	36	35	32	25	19	15	30
Glasgow .. .. .	9	16	23	30	32	31	28	28	26	20	11	7	24

TABLE 3.  
 AVERAGE MEAN DAILY TEMPERATURE IN DEGREES FAHR., 1881-1915  
 (BOOK OF NORMALS.)

	January	February	March	April	May	June	July	August	September	October	November	December	The Year
Manchester .. .. .	39.1	40.1	42.3	46.8	52.6	58.4	60.8	59.9	56.4	49.8	43.6	40.4	49.2
Blackpool .. .. .	38.7	39.3	41.2	45.4	50.7	56.4	59.3	58.8	55.6	49.2	43.8	40.1	48.2
Southport .. .. .	38.7	39.6	41.5	45.7	51.3	56.8	59.4	59.0	55.5	49.2	43.7	40.2	48.4
Rhyl .. .. .	40.4	40.9	42.3	46.2	51.2	57.0	59.4	59.2	55.9	50.0	45.0	42.0	49.1
Bidston (Liverpool) .. ..	39.3	39.9	41.9	46.3	51.8	57.3	60.0	59.5	56.1	49.5	44.4	40.8	48.9
Birmingham .. .. .	37.8	38.9	41.1	45.8	51.8	57.5	60.6	59.5	55.7	48.6	43.0	39.1	48.3
Hull .. .. .	37.7	38.9	41.0	45.1	50.6	56.5	60.1	59.4	55.4	48.7	42.9	38.7	47.9
Sheffield .. .. .	38.5	39.3	41.2	45.6	51.0	56.9	60.0	59.4	55.6	48.9	43.7	39.8	48.3

TABLE 4.

## RANGE OF DAILY TEMPERATURE.

	January	February	March	April	May	June	July	August	September	October	November	December	The Year
Manchester .. .. .	9.5	11.1	12.0	14.3	14.9	15.0	14.1	14.0	14.2	12.4	11.1	9.8	12.3
Blackpool .. .. .	8.7	9.5	11.1	13.6	14.4	14.2	12.4	12.0	12.7	11.4	9.8	8.9	11.6
Southport .. .. .	8.1	9.5	11.0	13.4	14.3	13.7	12.0	12.0	12.8	11.3	9.3	8.3	11.3
Rhyl .. .. .	10.4	10.9	11.1	12.6	13.4	13.3	11.9	11.7	12.8	11.6	11.1	10.8	11.8
Bidston (Liverpool) .. ..	8.0	8.6	10.0	12.2	12.9	12.6	11.5	11.1	10.7	9.3	8.3	8.0	10.3
Birmingham .. .. .	8.4	9.6	12.1	14.8	16.0	16.1	15.7	15.0	13.7	10.8	9.2	8.3	12.5
Hull .. .. .	9.9	11.6	14.2	16.3	17.2	17.8	17.4	17.4	16.3	13.7	11.3	9.8	14.4
Sheffield .. .. .	8.5	9.4	11.6	13.7	15.0	15.5	14.6	14.3	13.4	10.8	8.9	8.5	12.0

TABLE 5.  
RAINFALL (MILLIMETRES), 1881-1915.

	January	February	March	April	May	June	July	August	September	October	November	December	Year
Manchester .. .. .	18	16	17	15	17	13	16	17	13	17	17	18	194
Blackpool .. .. .	18	16	16	14	14	13	15	17	14	18	18	20	193
Southport .. .. .	17	16	15	14	14	12	15	17	14	17	18	20	189
Rhyl .. .. .	16	16	15	14	15	14	14	17	13	18	18	19	189
Bidston (Liverpool) .. ..	17	16	17	14	15	13	15	17	15	18	18	19	194
Birmingham .. .. .	14	13	14	13	14	12	14	16	12	17	15	16	170
Hull .. .. .	17	15	17	15	14	12	14	15	13	18	17	18	185
Sheffield .. .. .	17	15	17	14	13	12	14	15	13	17	17	18	182

A similar table has been extracted for mean daily temperature in the shade, which is given herewith (Table 3). It will be seen that the mean temperature in Manchester is higher than in any of the other localities. For the reason already given, this is not accompanied by a corresponding sensation of warmth, although in August the conditions become somewhat oppressive. Rhyl comes next as regards the average annual temperature. The other localities are considerably cooler, Hull being decidedly lowest. The temperature follows the same course in all, the highest temperature being reached in July. The maximum temperatures do not agree with the annual temperature, Birmingham as regards the former being close to Manchester, followed by Hull, Liverpool, and Sheffield. The temperature conditions favouring summer diarrhoea are not widely different in these towns, being most favourable to its prevalence in Manchester, and then in Birmingham. On the coast the heat of summer is tempered by the sea breezes, due to the diurnal heating of the soil.

All through the months April to October the mean temperature in Manchester is higher than in any other of the places used for comparison.

In November, December, January, and February it loses its premier position owing, no doubt, to the inability of the sun's rays to get through.

So far as health is concerned, the daily range of temperature, that is to say, the difference between the maximum and minimum temperature, is not less important than the actual temperature reached. Where the range is great the climate is bracing, where it is low the climate is said to be relaxing. The facts are as shown in Table 4.

A high range of temperature, given equal temperatures, means a high degree of radiation from the surface. This again is dependent on the rainfall remaining near the surface, on clear skies, on the presence of moving air, on the abundance of grass and trees, and on the accumulated temperature in the soil. Owing to the large surface in Manchester covered by clay there is plenty of moisture to evaporate, and there is a fair amount of green foliage in the outer parts of the City. Presumably these are the factors in operation in Birmingham, in Hull, and in Sheffield. Certainly in Manchester the favouring factors of clear skies and wind are not in high measure.

At all the seaside places the land and sea breezes tend to equalise the morning and evening temperature.

The daily range of temperature in Manchester is below that of Birmingham from March to August, while from September to February it is higher. It is below that of Hull throughout the year. From May to August it is below that of Sheffield, from September to April it is higher.



Compared with Blackpool and Southport, the daily range in Manchester is higher throughout the year. This is also nearly the case with regard to Rhyl, where, however, in December and January the daily range is higher than in Manchester. At Bidston (Liverpool) the daily range is, throughout, lower than in Manchester.

These conditions of temperature are relatively unfavourable in winter to young children in Manchester and Hull.

Table 5 shows the amount of rainfall in millimetres in the same localities.

It is relatively high in Manchester, Blackpool, and Liverpool, and far the lowest in Birmingham. This circumstance, taken in association with the higher amount of sunshine enjoyed by that City, especially from November to April, has probably to do with the better health enjoyed there.

The most conspicuous fact in the above records is the extent to which the access of sunshine is blocked by smoke in our large towns, and especially in Manchester during the months of November, December, and January. Undoubtedly this must have a very potent effect both on the continuance of infection and on the health of the individual. Direct sunlight is the universal destroyer of the micro-organisms which cause infection, and the effect is both rapid and complete where it has access to infective matter.

Hence, in the months mentioned, partly from the obscurity of the atmosphere, partly from the manner in which the houses are crowded together in the older parts of the City, every encouragement is given by the deficiency of sunlight to the maintenance in full vitality of the micro-organisms of tuberculosis, pneumonia, sepsis, and other diseases which may be scattered about. It is true that the ill effects as regards infection would be largely obviated if strict cleanliness could be secured. But that cannot be now done, and, in fact, the absence of light is the greatest cause of neglect of cleanliness, while, though slowly, the introduction of more sunlight is a practicable measure. The presence of soot and dust in the atmosphere has also a direct irritant effect on the lungs. It is probable that the average vision in Manchester is damaged by insufficiency of light. No doubt, also, the presence of the products of combustion injures the nasal mucous membrane. These, probably, are by far the most expensive aspects of smoke in the atmosphere.

But smoke has other aspects. Especially in still atmospheres, when the barometer stands high or, alternatively, if the wind blows the smoke from house or other low chimneys horizontally, it penetrates into dwellings, blackens the walls, blackens the curtains and rots them, makes cleanliness almost impossible.

In the same way it tends to penetrate into mills and warehouses and injure fabrics. It exercises an injurious effect on rubber goods, and in many different ways it tends to inflict damage. As a result, in spite of the numerous discourses and directions which have been given, the housewife closes her windows and the workshop follows the same course. The result is that the beneficial action of moving air on the expansion of the lungs is not obtained, and another large bill of bad health is run up. This can hardly be doubted, if the importance of a full intake of oxygen is remembered. To this intake the impact of moving air materially contributes.

The smoke present in the atmosphere damages vegetation in and immediately round Manchester. The heather on the Pennines becomes coated with black.

The loss sustained is a diffused one, but, in the aggregate, must be large.

As one walks into Manchester one sees a fog line near the roofs of the buildings.

All buildings, sooner or later, put on a thin coat of black. Nor is this without its effect on health. Everywhere walls are black. In this way there is a great loss of light, the most precious commodity in Manchester. A great improvement in lighting is effected merely by whitewashing or lime-whiting the yard walls of houses. But no such process can be applied to public buildings. The layer of drift clay which covers the greater part of Manchester is fairly impervious to water, but very retentive of that which it admits.

There is thus a continuous passage of aqueous vapour into the atmosphere available for the production of fogs in certain conditions.

More especially at certain seasons this results in the production of hazes and fogs more or less dense.

These reach their maximum in December and taper off in both directions. They may be grey or at times black. Their intensity varies greatly, as does their irritating character. At times, though not invariably, they are followed by an outburst of respiratory mortality. They are produced chiefly in cold, still weather, when the barometer is high. The moisture fastens on the particles of carbonaceous matter, and of fine dust, which at such periods cannot easily escape.

These particles contain sulphurous and sulphuric acids in amounts which are, at times, exceedingly irritating to the lungs. It should therefore be possible to demonstrate the effect of black smoke on health in connection with fogs.

With this object particulars were collected regarding the deaths from phthisis in each of six weeks preceding and in each of six weeks containing and following 105 consecutive fogs in the 20 years 1891-1910, and from pneumonia and



bronchitis for 59 consecutive fogs in the years 1897 to 1910. Only fogs of two or more days duration were used.

Charts have been made showing the relation of fogs to total deaths in weeks.

Sometimes the reaction is striking and generally is rapid, at other times it is absent or slight.

Individual fogs do not generally show any effect, though for some the rise in respiratory mortality is most striking. The resultants were therefore sought by adding the figures. These are :—

#### PHTHISIS.

	Weeks preceding the Fog						Weeks containing and following Fog					
	6	5	4	3	2	1	1	2	3	4	5	6
Deaths . .	2192	2040	2049	2135	2161	2294	2377	2468	2360	2339	2334	2300

#### PNEUMONIA AND BRONCHITIS.

	Weeks preceding						Weeks containing and following					
	6	5	4	3	2	1	1	2	3	4	5	6
Deaths, Pneumonia . .	1351	1389	1345	1442	1442	1434	1573	1638	1657	1710	1631	1530
Deaths, Bronchitis . .	1317	1301	1330	1526	1479	1627	1808	1864	1848	1699	1729	1740

Assuming the figures on the right-hand side to represent the effects of fogs, it will be seen that in the case of phthisis and bronchitis the fatal results culminated in the week after the fog, while in the case of pneumonia they increased steadily for three weeks.

This might be interpreted as meaning that in the case of phthisis and bronchitis the fatal results are merely accelerated, while in the case of pneumonia the disease is actually started on its course, the fatal issue coming later.

In the case of phthisis we may accept the injurious result as proved, and in fact this is confirmed by individual experiences.

It is to be remembered that fogs merely accentuate normal conditions, and that their influence is differential and not absolute.

In the case of pneumonia they are liable to be overborne by other conditions productive of pneumonia. The condition of the lungs in town dwellers, as revealed by post-mortem examination, also testify to the direct injury inflicted by smoke and dust,

It is manifest that smoke from coal fires is most wasteful of health, life, vegetation, beauty, and materials. But it is by no means easy to estimate, with any approach to precision, the pecuniary value of each or any of these sources of loss. An attempt was made by a Committee of experts at Pittsburg in 1912, by the method of inquiry forms, addressed to a great variety of industrial concerns, managers of businesses, and householders, to determine the loss sustained by that City annually. The result arrived at was, that from various kinds of damage sustained there was an annual loss of about £4 per head of population.

Of this £451,127 was put down to the laundry bill.

The Committee did not attempt to estimate the loss due to such items as depreciation in value of property, compulsory absence of certain industries, injury to health, impaired mental efficiency, etc.

In the pamphlet issued by the Air Pollution Advisory Board of the Manchester City Council, entitled the Black Smoke Tax, the above investigation is quoted, also the figure obtained by the Hon. Rollo Russell of £1 per head as the loss sustained by London from smoke.

This pamphlet contains also a careful and detailed investigation into the loss sustained by Manchester over what a population of like size would sustain at Harrogate in the wash bill alone, and this loss is shown to amount to over £250,000 per annum. This determination agrees nearly enough with the corresponding item at Pittsburg, if we remember that the smoke there was probably more prevalent even than here, and that when the Pittsburg estimate was made prices were higher in the United States than in England.

This, according to the Pittsburg estimate, is less than one-sixth of the total material loss sustained in that City.

In their brochure entitled "Coal Fires," after a description of the experiments conducted by Dr. Margaret Fishenden on radiation from different forms of grates and fuels, the Air Pollution Advisory Board conclude that practical results are most likely to be found in two directions :—

(1) By the development of a practical method of making some form of semi-coked coal at a reasonable price.

(2) By a further study of the whole question of draught in connection with coal fires.

In a paper to the Manchester and Salford Smoke Abatement Exhibition, in 1911, I ventured to suggest certain lines on which improvement might be effected, as follows :—

The emission of smoke, under Section 91 of the Public Health Act, 1875, should be made subject to cumulative penalties.

The word "black" should be omitted (though under safeguards).

Progress will be imperfect until the emission of smoke from the chimneys of private dwellings in such quantity as to be a nuisance is brought under Section 91.

It will, therefore, be of great advantage that gas should be sold as cheaply as possible.

Something might be effected in schools by the use of model fireplaces and by the instruction of children in the best way of using coal or other fuel, since it is quite certain that reasonable skill in the household is just as necessary as it is at the factory furnace.

It may be added that it is possible by skilful handling of most domestic fires to get a maximum of radiation from the fuel, and at the same time to reduce the emission of smoke to a minimum.

Much of the harm arising from the impure atmosphere might be averted if children were taught to breathe only through the nostrils. It is true, however, that unless special care were exercised, this would and does throw an additional strain on the mucous membrane of the nasal passages. But ten minutes' daily breathing exercise in the schools, with proper attention to the nasal passages, would effect much for the protection of the lungs.

These are things which could be carried out at once, except perhaps the inclusion of household smoke under Section 91 of the Public Health Act, 1875. They are only palliatives, but would serve to stimulate progress.

Progress in works is advancing at an increasing rate by the aid of gas and electricity, but the pace is slow and the need great.

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## INFLUENCE OF OCCUPATIONS IN MANCHESTER.

A study of the influence of occupations on health is by no means a simple matter.

The subject is one of the greatest interest, and has formerly been dealt with for Lancashire industries in a communication to the Manchester Statistical Society in the year 1899, while the relation of industries to the incidence of tuberculosis was discussed in a paper given in the British Medical Journal, September 13th, 1902.

The whole subject, however, requires to be considered with special reference to Manchester statistics and conditions, and will be taken up later in the year.

Meanwhile it may be stated, as the result of former studies, that the occupational mortality is profoundly influenced by the environment of the workers, as might be expected. It was found in 1902. for example, that the incidence of phthisis on dyers occupied close to common lodging-houses was much higher than on persons whose work lay in the outer part of the City. This, it was believed, was determined to no small extent by exposure to infection in public-houses, of which there are relatively to the population a much greater number in the central districts than in the outlying parts of Manchester, and by a greater degree of intemperance. Where, as in Ancoats and Hulme, the houses are so disposed relatively to factories, or so arranged on the site, as to produce deficiency of light, the infection of tuberculosis and other diseases remains viable for comparatively long periods.

Bad housing and intemperance thus modify materially the mortalities of occupations, not only as between one occupation and another, but also in the same industry.

There is no question at all as to the destructive influence of intemperance on the health of the drinker and his family. There are few causes of death which it does not intensify, and in the main causes of death such as phthisis, pneumonia, and heart disease, its effect is conspicuously great.

So far as occupation is concerned, there are different characteristics in the work pursued which produce intemperance. One is irregularity, whether seasonal, weekly, or depending on the manner in which business is carried on. Thus hat making is a business with seasonal irregularity, glass making with weekly irregularity, and all businesses employing casual labour, of which there are many, may be said to be conducted in such a manner as to produce irregularity of employment. Again, all occupations exposing the workman to high temperatures produce thirst, and this is most agreeably slaked with beer.

Of such there are many, glass making, metal founding, cotton spinning, hat making, stoking, and many others. Dusty occupations, and occupations such as that of manufacturing chemist, attended with irritation of the upper air passages, also predispose to drinking.

All occupations entailing long and exhausting work also have the same tendency.

But, in addition, the traditions of an occupation or a neighbourhood have a great effect in producing the drinking habit.

Domestic squalor and discomfort tend in the same direction.

It will be seen, therefore, that the tendency of shorter hours and higher wages is to diminish the amount spent in drink.



Intemperance has this effect over other incidents of occupation that, by the poverty induced, it strikes down not only the intemperate person, but his family as well, or at all events it does so in a greater degree.

The mortality of occupations will thus vary, not only as between one part of the City and another, but also as between different towns.

The factories themselves vary. Those built in the older parts of the City are not constructed in the same manner as those more recently erected.

To determine the effect of these various influences it will be necessary to study the mortalities of the same occupations in different parts of Manchester.

Meanwhile, the materials for this study are not prepared. But there are certain advantages in using general statistics. The influence of special localities is largely eliminated, and we are able to get a better idea of the effect of occupations quâ occupations. It may, therefore, be worth while to give some general figures, and leave the details to be worked out later.

#### OCCUPATIONS SPECIAL TO THE CITY OF MANCHESTER.

From the census figures for 1911, Part II., we find that the total population of the City of Manchester consisted of 343,347 males and 370,986 females, making altogether 714,333.

The numbers under 10 years of age were 74,896 males and 75,098 females altogether 149,994. At 10 years of age and upwards there were altogether 564,337. Of these the males numbered 268,449, of whom 231,204 were occupied 37,245 unoccupied. Of the latter number there were under 14 years of age 25,609. The remaining 11,636 includes scholars and students of ages 14 and upwards. The females of 10 and upwards numbered 295,888, of whom 116,581 were occupied, 179,305 unoccupied.

Thus nearly the whole male population was occupied. The occupied persons male and female, numbered 347,787, and constituted nearly one-half of the population.

These figures enable us to form some conception of the dislocation entailed by the large drafts of men required for the war, and also of women, though the latter were contributed largely out of the unoccupied section, both to the service and to work in civil life. This may properly be considered, not as dislocation but rather as a revelation of latent powers.

The classes making up the occupied persons are, to a large extent, common to Manchester with other localities. But the following occupations contributed relatively high numbers in Manchester at the Census.



TABLE I.

	MALES	FEMALES
1. Commercial occupations .. .. .	22,910	3,804
2. On railways .. .. .	9,398	65
3. On roads (part), carmen, carters, carriers, wagoners (not farm), etc.	13,850	123
4. In storage, portorage, and messages .. .. .	9,835	1,287
5. Mines and quarries .. .. .	2,382	16
6. Iron, steel, etc., manufacture .. .. .	661	0
7. General engineering and machine making .. .. .	26,532	385
8. Tools, dies, etc., arms, mixed metal trades .. .. .	6,007	755
9. Electrical apparatus .. .. .	2,913	152
10. Vehicles .. .. .	5,012	139
11. Precious metals, jewels, watches, instruments, and games—Workers	1,520	315
12. Wood, furniture, fittings, decorations .. .. .	6,294	859
13. Brick, cement, pottery, and glass .. .. .	1,314	148
14. Manufacturing chemists .. .. .	1,294	136
15. Indiarubber and waterproofs .. .. .	3,543	2,204
16. Paper box, bag, etc., making .. .. .	1,277	1,977
17. Printers, lithographers, bookbinders.. .. .	4,061	1,915
18. Textile manufactures .. .. .	4,648	15,405
19. Bleaching, printing, dyeing .. .. .	5,426	1,411
20. Dealers in 18 and 19 .. .. .	9,084	1,279
21. Tailors .. .. .	4,356	5,905
22. Dressmakers .. .. .	226	10,228
23. Hat and cap makers (not straw) .. .. .	702	2,180
24. Tobacco manufacturers .. .. .	188	921
	<hr/> 143,433	<hr/> 51,609

Mortality figures are given for a number of these occupations in the Decennial Supplement of the Registrar-General for the years 1900-1902.

The figures for 1910-1912 are not at the present time available either for England and Wales or for the City of Manchester, and will take a considerable period to prepare. But we may form some idea of the influence of occupation by accepting the figures given in the above supplement for the whole country, and, where available, for Lancashire.

Table VIII. in the supplement dealing with occupations gives, for males, relative mortalities of occupations at ages 25-65 calculated on the death-rates of four age groups, and furnishes a comparison with the figures for 1890-1892. The following extracts from these figures follow the successive numbers already placed opposite the numbers of persons at the census, 1911, in special employments in Manchester.

TABLE 2.

*Relative Mortality Figures for Occupied Males in Selected Occupations.*

No.	DESIGNATION OF GROUP	1900-02	1890-2
	All males .. .. .	1,000	1,155
	Occupied males .. .. .	925	1,102
1a.	Commercial traveller .. .. .	907	1,111
1b.	Commercial clerk .. .. .	837	1,056
2.	Platelayer, railway labourer, navvy, etc., road labourer	707	1,221
3.	Carman, carrier, etc. .. .. .	1,094	1,484
4.	Messenger, porter, etc. (not Railway or Government)	1,341	1,415
5.	Coal miner (Lancashire) .. .. .	1,006	1,236
6a.	Blacksmith's striker .. .. .	884	1,057
6b.	Nail, anchor, chain, and other iron and steel manufactures	1,137	1,504
7.	Engine, machine, boiler maker, etc. .. .. .	866	1,244
8.	Tool, file, scissors, saw, needle, etc., maker.. .. .	1,231	1,633
9.	Electrical apparatus .. .. .	—	—
10.	Coach, carriage, railway coach, etc., maker .. .. .	774	1,201
11.	Watch, clock, scientific instrument maker, etc. .. .. .	817	1,130
12.	Cabinet maker, etc. .. .. .	888	1,131
13a.	Potter, etc. .. .. .	1,420	1,970
13b.	Glass manufacture .. .. .	1,202	1,719
14.	Manufacturing chemist .. .. .	—	—
15.	Indiarubber and waterproofing .. .. .	—	—
16.	Paper manufacture .. .. .	684	1,043
17a.	Printer .. .. .	935	1,267
17b.	Bookbinder .. .. .	889	1,225
18.	Cotton manufacture (Lancashire) .. .. .	1,053	1,358
19.	Textile dyer, bleacher, printer, finisher, etc... .. .	1,066	1,585
20.	Tailor .. .. .	953	1,144
21.	Hatter (? Hat maker) .. .. .	1,046	1,283
22.	Tobacconist, etc. (? Tobacco manufacturer) .. .. .	898	1,159

An examination of these figures shows a very striking improvement between 1891 and 1901 in the mortalities of all the occupations specified, and consequently of all occupied males. But this is much greater in some occupations than in others. Thus it is very conspicuous in the case of railway workers, carriers, carters, etc., ironworkers generally, carriage, etc., makers, watch, clock, etc., makers, potters, glass workers, printers, bookbinders, cotton manufacturers, dyers, bleachers, and printers.

The great improvement in iron and steel manufacturers, and in cotton manufactures, is an important fact.

So far as males are concerned the improvement in iron and steel manufactures is far more important than is that in the manufacture of cotton, which has not the importance in Manchester that it possesses in some of the smaller adjoining towns.

It is not easy to account for the great improvement shown over so many occupations, except by supposing that some widely acting social changes occurred in the intervening period. It was a period of very active house-building, and the population generally was steadily becoming better housed in Manchester, partly due to movement to the outskirts of the town, partly to improvements in detail. So far as Manchester was concerned great activity was being shown in altering the systems for dealing with excreta, in house drainage, and in the piecemeal improvement of housing, and it is probable that these changes were general over the country.

Probably, also, the country was more prosperous at the later period, a circumstance which reacts immediately on the mortality statistics. One is tempted to suppose that the habits of the population as regards the consumption of alcohol may have improved, and that this is reflected in the statistics. When we observe, however, that brewers, publicans, and inn servants share in the general improvement we are obliged to give up this suggestion as the main explanation of the betterment.

In the case of potters, glass makers, printers, and in groups 8 and 10 a partial explanation is to be found in the precautions taken by the Home Office to reduce the death-rate from lead poisoning. On the other hand, all these classes, with the addition of bookbinders, are said to be addicted to intemperance, and it is possible that some improvement as regards drinking may have occurred in particular classes.

In cotton manufacture great efforts have been made to improve the condition of the operatives in respect of ventilation and otherwise, and this no doubt contributed to increase the improvement. Probably changes in housing also did much. So far as Manchester is concerned this last observation is specially applicable in the case of dyers and bleachers.

It is by no means certain that cotton operatives in Manchester have benefited to the same extent as Lancashire generally, since a large number of them reside in Ancoats, a comparatively unhealthy district.

There is no pottery now in Manchester, and glass making had until recently shrunk to small dimensions, Germany having captured the industry.

Of the businesses enumerated the least improvement was shown in the following :—

4. Messengers, porters, etc. This is an intemperate occupation.

6a. Blacksmith's strikers. The same applies.

21. Tailoring. Probably the least improvement in habits of work occurred here.

Almost the only class which shows retrogression is that of labourers (London of whom the relative mortality figures were, in 1900-02, 1808 ; in 1891-92, 163

General labourers are an intemperate class, and suffer especially from this cause if there is much casual labour.

There is no doubt whatever that alcoholism is destructive of health, and it is perfectly safe to affirm that if any intemperate class of workers shows a marked improvement it is due to other causes whose action is impeded by the intemperance.

In the construction of the figures of comparative mortality for different occupations there is necessarily some loss of continuity. Moreover, the comparative mortality figure, although it simplifies the study of the figures, might conceivably mislead. Suppose the numbers in the cotton industry fall at higher ages as compared with other occupations, as they do, and the mortality rate to rise by comparison, the effect on the comparative mortality figure is to give the cotton industry a higher comparative mortality than it should have.

Moreover, the manner in which the death-rate rises as age advances may throw light on the conditions of the occupation. The following table shows therefore, the death-rates at seven groups of ages for the occupations special to Manchester.



TABLE 3.

MEAN ANNUAL DEATH-RATES OF OCCUPIED MALES IN 1900-02 IN  
GROUPS OF AGES.

OCCUPATION	15—	20—	25—	35—	45—	55—	65+
Occupied males .. ..	2'44	4'41	6'01	10'22	17'73	31'01	88'39
Commercial traveller ..	1'59	3'23	4'90	8'67	18'68	33'97	87'41
Commercial clerk, etc...	2'16	4'69	5'78	9'26	15'76	27'57	58'37
Railway engine driver, stoker	3'48	3'92	3'45	5'64	10'19	23'57	122'51
Railway guard, porter, pointsman, etc.	4'07	4'76	4'97	7'77	13'99	28'83	79'13
Railway official, clerk ..	2'54	5'11	4'79	6'00	13'79	26'74	91'78
Farman, carrier, etc. - ..	2'80	4'29	6'71	13'09	20'42	36'46	107'84
Messenger, porter, etc...	2'01	7'19	10'02	16'94	25'93	36'49	64'40
General engineering, machine fitting	2'38	4'30	4'92	8'53	16'18	33'78	99'73
Tool, scissors, file, saw, needle maker	2'09	3'32	6'32	13'65	25'97	42'05	100'65
Saddlery, carriage maker..	1'79	3'17	4'58	6'94	15'83	29'05	93'99
Cabinet maker .. ..	2'61	3'73	5'20	9'84	17'34	30'65	82'99
Glass maker .. ..	2'62	5'09	6'74	13'14	24'14	41'84	119'38
Printer .. ..	3'19	6'03	6'46	10'19	17'76	30'76	87'61
Photographer .. ..	1'55	5'36	5'62	8'41	19'94	30'84	82'25
Bookbinder .. ..	1'90	6'04	5'83	9'69	15'66	32'06	82'08
Cotton manufacture (Lancashire)	2'74	4'36	5'46	9'82	20'76	42'13	129'29
Teaching, printing, dyeing	3'30	4'58	5'83	10'26	20'83	41'36	125'16
Sailors .. ..	2'19	3'98	5'64	10'03	19'20	33'02	83'09
Latex rubber, gutta percha worker; water-proof goods maker	2'77	5'46	6'74	10'54	20'68	34'97	124'06
General labourer (London)	3'81	7'88	13'39	24'54	36'73	43'06	68'32
General labourer (industrial districts)	5'44	9'98	16'00	31'86	50'16	68'89	153'53
Chemist, druggist, etc...	2'88	4'85	6'58	8'73	18'52	32'33	95'40
Man, hotel—Servant ..	3'03	5'90	14'21	26'28	33'87	37'30	53'57



If we consider first the mortalities at 65 and upwards, we note that the highest death-rate is among cotton operatives, the next in the class grouped as dyers, bleachers, and printers.

Both of these show a death-rate more than three times as great as at the age group 55-64.

In the case of engine drivers and stokers the disproportion is still greater.

In the case of cotton operatives, the tremendous noises, the great strain on the attention, and in certain parts of the work the unhealthy atmosphere, all combine to wear out the system. Moreover, the male operatives are a picked class, and, either owing to promotion or to retirement, those who reach the age of 65 and who are still at work form a comparatively small and inferior class. In the case of engine drivers and stokers it is probable that the death-rate indicates a similar breakdown under great strain, and that the effect of strain is here shown in its purest form.

In the case of engine drivers and stokers, the transition to a high death-rate over 65 is an abrupt one. Not so with cotton workers. The death-rate first exceeds the normal at ages 45-54, and is then progressively increasing. In the case of dyers, bleachers, and printers the excess is also progressive, and commences at ages 35-44.

Cotton operatives have also a mortality exceeding the normal at ages 15-24, due to the early period of life when this work is entered upon and to the fact that heavy work is placed on the young. The carding room hand suffers from the presence of fine cotton fibre in the atmosphere, the less so if the fibre has been thoroughly cleaned beforehand.

In some of the spinning rooms the temperature is high and ventilation insufficient. This, again, is the result of the conditions imposed. The air must have a percentage of moisture of 60 to 80 per cent., and must, for the purposes of the manufacture, be clean, which is effected by passing it through moist brattice cloth. The expenses would be greatly increased if the volume of air passed through were much increased and were also raised to the temperature required. Doubtless, however, this could be effected at a price with very beneficial results.

A further source of ill-health is the practice of sizing cloth with China clay, which produces great injury to the lungs of the workpeople at every stage of the manufacture of the sized thread, and afterwards in the warehouses where the goods are stored.

Owing to the initiative of Dr. James Wheatley, the exposure of the clothing of cotton workers to a moist atmosphere is now illegal. But it is probably still the practice of these workers to hurry through the streets in the early morning very imperfectly clad even in the coldest weather, at all events in the pure cotton towns.

How far intemperance can be shown to have prevailed in 1900-02 we shall presently see.

Great improvements have been introduced, especially into the newer mills, and the industry can well afford them.

The group dyers, bleachers, and printers suffer from the irritating effects of the bleaching agent, and from the steam in the dyeing-room. Probably, in this group were included special very injurious process, such as dyeing with chromate of lead, and the noddling which followed the drying of the thread. Here also goods were sized with China clay.

It is difficult to see, however, why the death-rates here follow the same course as those of cotton operatives. In the case of cotton operatives the greatest injury appears to be sustained by spinners, and there is no equivalent cause of a high death-rate among dyers, bleachers, and printers. Possibly the class from whom the workers is drawn may have something to do with it.

Like cotton operatives, dyers, bleachers, and printers begin work at an early age, and sustain a high mortality at the earlier ages.

Other groups which show a high death-rate over 65 are carmen, carriers, etc. Their excessive death-rates begin at the age of 25, and are then continuous. These men have to lift very heavy weights, and sustain great physical strain.

This is also true of the next class, "messengers, porters, etc.," a mixed group. Their mortality rates are also progressive up to 65, but then recessive, possibly due to dilution with "messengers."

It is probable that intemperance has to do with the high death-rates in this class.

Tool, scissors, file, etc., makers show a steady excess in their death-rates above the age of 25. This is, no doubt, mainly occupational, and due to the inhalation of injurious dust, and to the effects of lead on the system.

Those engaged in general engineering, machine fitting, etc., have high death-rates above the age of 55. Possibly intemperance has something to do with this. Large numbers are exposed to high temperatures, and their work is severe and exacting.

Glass workers in varying numbers are exposed to the action of lead in the mixing of the ingredients and in polishing glass with lead oxide. They are exposed to high temperatures and work long hours, with periods of rest while

the glass is being melted. The work is severe. Owing to the high temperatures and to the intermittent character of their work they are very liable to be intemperate.

Their exposure to lead poisoning is now much diminished owing to the provision of local extraction fans, and also to the employment of other polishing agents. Further, their danger from the mixing processes is diminished by the enforcement of Home Office regulations.

Indiarubber, gutta percha workers ; waterproof goods makers. This class of operatives formerly suffered severely from bisulphide of carbon poisoning, and no doubt still do to a limited extent. But the use of bisulphide has now much diminished relative to the total volume of the industry, and provision has to be made to carry off the vapours locally. These workers also suffer from exposure to naphtha vapours. Some of the African rubber formerly used was very offensive, and may have been injurious, though I have no proof of that. Some of the operatives are exposed to the fumes of sulphurous acid. Others work in a hot atmosphere. But there is nothing in these industries to account for the excess in the death-rates at every age group. Possibly lead enters into some of the ingredients.

The industry is largely a Manchester one, and the operatives are drawn from the most insanitary districts in the City. It is quite likely that this circumstance, coupled with the unpleasant character of the work, has much to do with the excess in the death-rates.

Another Manchester industry is that of manufacturing chemist, a term which covers a great variety of manufactures, with this in common that great part of them produce gases injurious to the lungs. This industry is grouped with that of druggist, although there is no relation so far as health is concerned. The injury is, therefore, diluted very greatly. We see that the death-rates are excessive when work is first entered upon, and subsequently at ages 45 and upwards.

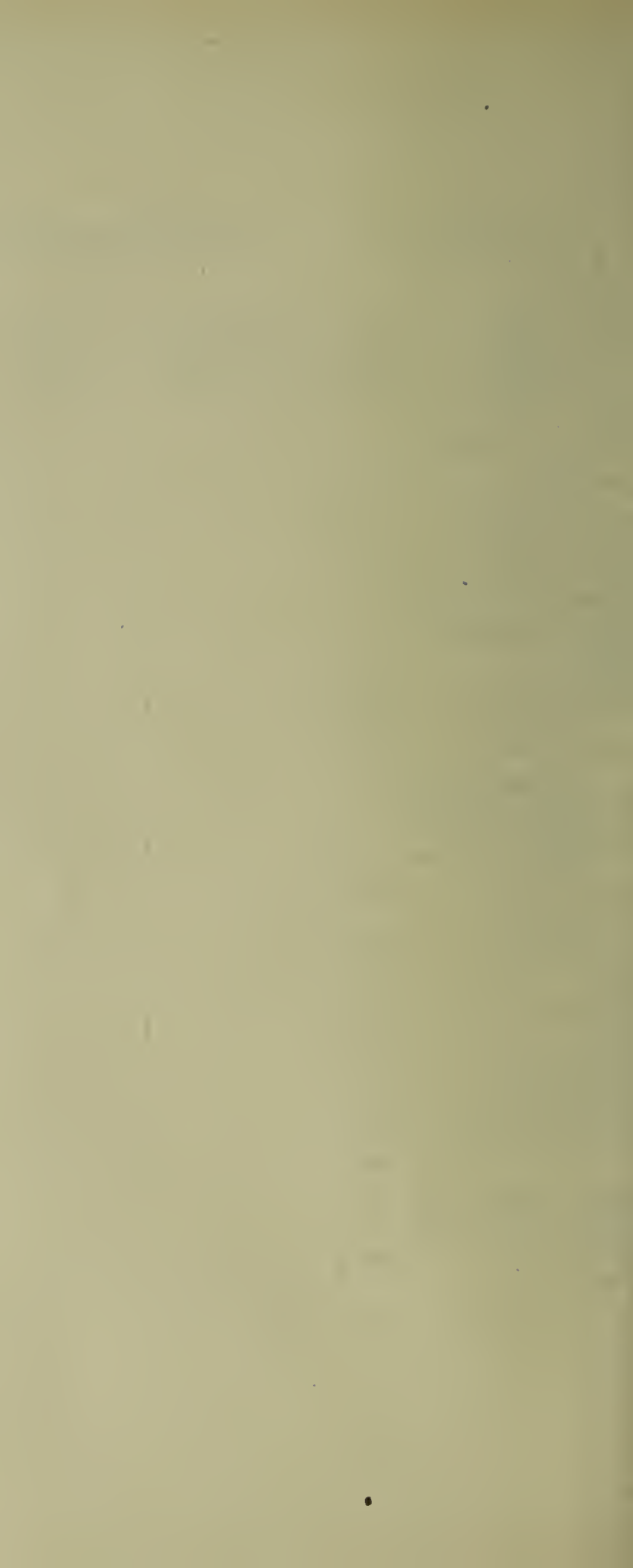
The huge excess in the death-rate of general labourers at every age group demands attention. There can be no doubt that this represents the effects of intemperance, produced in turn by inadequate wages and irregular work, an evil tradition, and an excessive number of public-houses.

The figures given under 3, 4, 7, 8, 18, 19, and 22, which are representative of Manchester, must therefore be regarded as highly unsatisfactory.



TABLE 4.  
THE CAUSES OF DEATH IN 1900-02. COMPARATIVE MORTALITY FIGURES IN SELECTED OCCUPATIONS.

OCCUPATION	All causes	Influenza	Alcoholism	Rheumatic Fever	Gout	Cancer	Phthisis	Diabetes	Disease of Nervous System	Valvular Disease of Heart	Aneurism	Other Disease of Circulating System	Bronchitis	Pneumonia	Pleurisy	Other Diseases of Respiratory System	Hernia	Disease of Liver	Other Diseases of Digestive System	Bright's Disease	Other Diseases of Urinary System	Plumbism	Accident	Suicide	Other causes
Occupied males .. .. .	925	21	16	7	2	61	175	9	78	33	7	95	53	87	6	19	3	25	26	32	16	1	59	19	77
1a. Commercial traveller .. ..	907	25	21	7	4	67	161	16	88	43	5	87	26	72	8	18	1	59	28	37	25	0	28	25	56
1b. Commercial clerk.. .. .	837	23	11	7	2	68	191	11	78	31	6	82	32	62	5	16	1	24	27	34	15	0	20	24	67
2a. Railway engine driver, stoker	582	20	3	4	1	48	63	13	67	26	5	70	24	41	3	11	1	17	14	21	10	0	69	7	40
2b. Guard, porter, pointman, etc.	771	25	6	4	1	59	111	9	64	28	5	80	40	66	4	13	3	16	22	24	13	0	115	10	55
2c. Official, clerk .. .. .	707	27	6	5	2	52	158	16	75	28	8	73	18	37	4	13	2	22	26	30	12	0	31	12	50
3. Carman, carrier, etc. .. ..	1094	29	18	8	2	71	169	6	81	38	9	104	83	130	7	21	4	22	28	31	18	0	121	17	77
4. Messenger, porter, etc. ..	1341	33	32	8	4	79	368	7	84	50	12	122	90	134	6	23	3	32	23	40	20	0	61	23	87
7a. Engine, machine, boiler maker; fitter; millwright	886	21	10	9	2	62	157	10	89	32	6	98	50	80	6	18	3	21	21	33	17	0	43	13	65
7b. Tool, scissors, file, saw, needle maker	1231	18	9	8	2	67	353	8	112	35	5	120	99	109	8	34	4	17	28	46	11	9	30	20	78
9. Coach, carriage, etc., maker	774	23	4	9	4	54	124	9	99	26	6	77	42	77	6	17	1	22	22	38	14	8	27	10	55
10. Cabinet maker, etc .. ..	888	16	15	7	2	75	217	7	65	35	6	83	53	77	5	21	1	24	25	32	16	0	24	25	57
13. Glass manufacture .. ..	1202	34	7	9	2	62	269	16	108	36	10	129	131	102	8	22	0	24	28	49	17	8	32	18	81
17a. Printer .. .. .	935	26	8	5	3	63	290	9	82	37	3	80	44	59	5	13	1	25	28	39	15	2	20	14	64
17b. Lithographer.. .. .	910	25	13	—	—	61	240	3	85	29	3	124	22	48	4	34	—	30	25	23	9	0	27	27	78
17c. Bookbinder .. .. .	889	9	16	7	4	71	273	3	72	45	—	62	64	51	10	38	—	25	25	37	12	0	13	17	15
18. Cotton manufacture .. .. (Lancashire)	1053	22	11	11	1	70	194	10	117	31	2	123	88	107	6	15	5	17	30	14	22	0	33	18	86
19. Bleaching, printing, dyeing..	1066	28	11	7	—	79	184	20	109	46	5	120	72	107	7	18	3	24	33	46	16	0	31	16	84
21. Tailor .. .. .	953	18	13	4	3	74	236	12	91	27	6	92	55	65	7	20	2	25	28	41	18	0	26	21	69
22. Indiarubber, gutta percha worker; waterproof goods maker	971	43	11	11	—	82	236	—	92	26	4	92	59	84	4	19	0	42	42	39	8	0	26	11	40
23. General labourer .. .. .	1987	41	40	10	3	111	450	9	154	76	17	201	123	224	13	35	5	34	39	59	29	0	120	31	163





It has appeared that intemperance obtrudes itself at various points as producing a marked effect on the figures for different occupations, and it seems desirable, therefore, to obtain further light on this subject. For this, and other reasons, I have excerpted from the same volume figures showing the mortality rates of the same occupations from a number of different causes of death for comparison with the corresponding causes for occupied males given at the top of Table 4. (See Table 5.)

We may use the above tables to throw light on the relation of occupational mortality to intemperance.

If we look at the death-rates for inn and hotel servants, we observe that the death-rates are generally very high. But there is this peculiarity about them: The death-rate at ages 20-24 already exceeds that for all males, the excess rapidly rises at ages 25-34, reaches its maximum at ages 35-44, begins to decline at ages 45-54, and then rapidly falls. It is thus in excess at the middle period of life, and is not progressive.

Whether any particular occupation is addicted to alcohol or not, if its death-rates increase progressively to old age, there are other factors at work besides alcoholism.

This criterion would indicate the following groups as being affected by alcoholism :—

- Carriers, carters, etc. ;
- Messengers, porters, etc. ;
- possibly printers and lithographers.

In other groups the known facts are obscured by the action of more potent causes.

Further information may be obtained by studying the relative mortalities from different causes. It is necessary to remember that the mortality rates ascribed to "alcoholism" are quite unreliable taken by themselves.

But alcoholism tends to send up the death-rates from a number of causes, phthisis, disease of the nervous system, diseases of the circulation, bronchitis, pneumonia, disease of the liver, Bright's disease, and suicide, and by combining these causes of death we shall be able to form an opinion on the subject. Of course, the mortality rates from these diseases are conditioned also by other causes, but this we can bear in mind. The materials for this study are given in tables 4 and 5, the latter being an excerpt from table 4 for ease of study.

The figures are as follows :—

TABLE 5.

COMPARATIVE MORTALITY FIGURES TO ILLUSTRATE THE CONNECTION OF OCCUPATION WITH INTEMPERANCE.

	Alcoholism	Phthisis	Nervous System	Circulation	Bronchitis	Pneumonia	Disease of Liver	Bright's Disease
Occupied males .. .. .	16	175	78	95	53	87	25	32
Commercial traveller .. ..	21	161	88	87	26	72	59	37
Carman, carrier, etc. .. ..	18	169	81	104	23	130	22	31
Messenger, porter, etc. .. ..	32	368	84	122	90	134	32	40
Engine, machine, boiler maker, etc.	10	157	89	98	50	80	21	33
Tool, scissors, file, etc., maker	9	353	112	120	99	109	17	46
Coach, carriage, etc., maker..	4	124	99	77	42	77	22	38
Cabinet maker .. .. .	15	217	65	83	53	77	24	32
Glass manufacturer .. ..	7	269	108	129	131	102	24	49
Printer .. .. .	8	290	82	80	44	59	25	39
Lithographer .. .. .	13	240	85	124	22	48	30	23
Bookbinder .. .. .	16	273	72	62	64	51	25	37
Cotton manufacturer .. .. (Lancashire)	11	194	117	123	88	107	17	14
Bleaching, printing, dyeing ..	11	184	109	120	72	107	24	46
Tailor .. .. .	13	236	91	92	55	65	25	41
Indiarubber, etc. .. .. .	11	236	92	92	59	84	42	39
General labourer .. .. .	40	450	154	201	123	224	34	59
Inn, hotel servant .. .. .	129	533	110	138	78	184	45	62

On reference to the last two rows, which may be taken to illustrate the effect of alcoholism on mortality from different diseases, it will be seen that they support the criteria selected to determine the fact of alcoholism. The death-rate from phthisis seems terribly excessive, but this great excess is probably due to the exceptional opportunities which public-houses offer for infection.

If we take the occupations as they existed in 1900-02, commercial travellers may be put down as intemperate in view of their high mortality rates from diseases of the liver, Bright's disease, and suicide. The class carmen, carriers, etc., have an excessive rate from alcoholism, diseases of the circulation, bronchitis, and pneumonia, which of itself is not enough to stamp them as intemperate, though creating a strong presumption. The class messengers, porters, etc., is marked out as intemperate by all the figures.

Engine, machine, etc., makers are not conclusively indicated. But they have excess in the death-rate from nervous diseases, diseases of the circulation, and Bright's disease. Probably they are not so much affected by alcohol as the average worker. Tool, scissors, file, etc., makers cannot be adjudged intemperate. The excess in death-rates which they show may be put down to sharp dust and lead poisoning. Coach, carriage, etc., makers have an excessive death-rate from diseases of the nervous system and Bright's disease, but this is probably caused by lead poisoning. The other criteria do not mark out this class as intemperate.

Cabinet makers have a fairly high death-rate from alcoholism and an excess under suicide. Their mortality rate from phthisis is high. Probably there is considerable intemperance in the class.

Glass manufacturers have excessive mortality rates under phthisis, diseases of the nervous system, diseases of the circulation, bronchitis, pneumonia, and Bright's disease. They are known to be intemperate, otherwise the fact that they suffer from lead poisoning and excessive strain would obscure the fact. The direct occupational injury tends to hide the effects of alcohol.

Printers have an excessive death-rate under phthisis, diseases of the nervous system, and Bright's disease. But they suffer from lead poisoning, which might account for these excesses. Intemperance is not revealed, though it is said to exist.

Lithographers suffer in excess from phthisis, diseases of the nervous system, diseases of the circulation, disease of the liver, and suicide. We may conclude that this class is injured by alcohol.

Bookbinders have an average rate from alcoholism and a high rate from phthisis, also from Bright's disease. Probably there is some excess in this class.

Cotton workers have excess mortality rates from phthisis, diseases of the nervous system, diseases of the circulation, bronchitis, and pneumonia. Having regard to the first, second, and third of these causes of death, we may suspect that the mortality rate is partly conditioned by intemperance. But the main elements in it are occupational.

The death-rates under bleaching, printing, and dyeing follow those under cotton manufacture with extraordinary closeness, except that they show a high mortality rate under Bright's disease. Probably there is a fair amount of intemperance in this class. It is difficult to see why they should have such high death-rates.

Tailors have an excess mortality rate under phthisis, diseases of the nervous system and of the circulation, Bright's disease, and suicide. These facts would indicate a considerable amount of intemperance in this class, conditioned possibly by their long and irregular periods of work.

Indiarubber workers have excess rates under phthisis, diseases of the nervous system, diseases of the liver, and Bright's disease. As there is nothing in the occupation evidently calculated to cause these excesses, we must regard the class as intemperate, pending further enquiry. It has been mentioned, however, that some degree of lead poisoning is suspected.

It will be seen that the figures appear to show a considerable prevalence of intemperance in 1900-02 in Manchester occupations, with corresponding high death-rates. The number of licensed houses in the City is still high.

Elsewhere it has been shown that men living in common lodging-houses in Manchester sustain an immense mortality, that from tuberculosis of the lung being calculated at one time as 20 per 1,000, or ten times the average. Now, the habits of the inmates of lodging-houses as regards expectoration, notwithstanding all the efforts made to prevent it, are such as to produce a high amount of infection. I have also shown that the same holds for public-houses as a class, or rather held, since more improvement was effected in the latter. It is no doubt to this circumstance and to imperfect cleaning that the enormous mortalities from tuberculosis of the lung are due, a statement which applies also to general labourers and hawkers, who come into contact in public-houses with the inhabitants of common lodging-houses, or themselves live in them.

In 1899 a list was made out showing the occupations under which the occupied males in Manchester living in common lodging-houses in 1898 mostly fell. The larger numbers were as follows :—

Labourers .. .. .	1,919	Stablemen .. .. .	155
Hawkers .. .. .	638	Newsvendors .. .. .	148
Tramps .. .. .	441	Flower-sellers.. .. .	122
Shoemakers .. .. .	196	Hotel porters .. .. .	121
Carters .. .. .	178	Tailors .. .. .	117
Mechanics .. .. .	162	Joiners .. .. .	100
Railway porters .. .. .	155		



The influence of social conditions is suggested in the striking resemblance between the mortality rates in cotton manufacture and in dyers', bleachers', and printers' occupations, which often have in common the class from which the workers are recruited.

From Table 4 it will be seen that the effects of occupations involving the use of lead salts are exhibited under the headings tools, scissors, file, etc., makers, coach, carriage, etc., maker, glass manufacture, and printer. Three of these show marked excess under phthisis, but in the third the reverse is the case. Two show marked excess under diseases of the circulation and two under pneumonia. The only one cause other than plumbism which shows a marked excess is Bright's disease. Nevertheless lead poisoning is probably a searching condition. The examination of Table 4 may, perhaps, best be conducted by indicating the diseases under which excess occurs over the rates for occupied males, and commenting on these.

*Commercial travellers.*—There is excess under gout, cancer, diabetes, disease of the liver, other diseases of the digestive system, Bright's disease, other urinary diseases, and suicide.

These data indicate intemperance, not necessarily confined to alcohol. Considerable mental strain is indicated.

*Commercial clerk.*—There is excess under cancer, diabetes, phthisis, and suicide. Mental strain is indicated and some degree of alcoholic intemperance.

*Railway engine driver, stoker, etc.*—Suffer excess under diabetes and accident. Mental strain may account for the high rate from diabetes.

*Railway guards, porters, pointmen.*—The only cause of death in excess is accident. But the excess under this head is large.

*Railway official, clerk.*—There is excess only under diabetes. Probably this class also suffer from considerable mental strain.

*Carman, carrier.*—There is excess under alcoholism, rheumatic fever, cancer, disease of the nervous system, valvular disease of the heart, diseases of the circulation, pneumonia, and accident. The excess under accident is very great. There is much exposure to damp. Alcoholism is a factor. There is considerable physical stress.

*Messenger, porter, etc.*—There is excess under alcoholism, rheumatic fever, gout, cancer, phthisis, disease of the nervous system, valvular disease of the heart, aneurism, other disease of the circulation, bronchitis, pneumonia, other



respiratory disease, disease of the liver, Bright's disease, other urinary diseases, accident, suicide. The class is an intemperate one, suffers from physical strain, and also from the conditions of living generally. There is exposure to damp.

*Engine, machine, boiler maker, etc.*—There is excess under rheumatic fever, cancer, diabetes, diseases of the nervous system, other diseases of the circulation, Bright's disease. The group is a large one, and embraces employments with different tendencies. It is probable that amongst the groups exposed to high temperatures there is a considerable amount of intemperance. Otherwise the employments are healthy, though involving the need for great physical strength. In certain sections there is exposure to dust of a character injurious to the lungs. The effects are overlaid by grouping.

*Tool, scissors, file, etc., maker.*—Excessive rates occur under rheumatic fever, cancer, phthisis, diseases of the nervous system, valvular disease of the heart, disease of the circulation, bronchitis, pneumonia, pleurisy, other respiratory disease, Bright's disease, suicide. There are here two main causes of death, injurious dust injuring the lungs, and lead poisoning injuring the circulation, the kidneys, and the nervous system. It is not possible to disentangle the effects of alcoholism or of social conditions without topical enquiry.

*Couch, carriage, etc., maker.*—There is excess under rheumatic fever, gout, disease of the nervous system, and Bright's disease. There is exposure to damp, but the effects of lead in the system will account for the last three heads.

*Cabinet maker.*—There is excess under cancer, phthisis, valvular disease, suicide. But under alcoholism, diseases of the liver, and Bright's disease the rates are nearly those of all occupied males which are high. It is probable that there is intemperance and that the excesses recorded are not occupational.

*Glass manufacture.*—The excesses are under influenza, rheumatic fever, cancer, phthisis, diabetes, disease of the nervous system, valvular disease, aneurism, other diseases of the circulation, bronchitis, pneumonia, other respiratory disease, Bright's disease, and plumbism. The causes of the high death-rates in this class are exposure to lead poisoning, injurious dust, high temperatures, great strain and long hours, and finally intemperance.

*Printer.*—Excess occurs under gout, cancer, phthisis, disease of the nervous system, valvular disease, Bright's disease, plumbism. The gout and Bright's disease are accounted for under plumbism, as may also be disease of the nervous system. The figures give no evidence to support the reputed intemperance of printers.

*Lithographers.*—Excess occurs under phthisis, diseases of the nervous system, diseases of the circulation, diseases of the liver, and suicide. There is clear evidence of intemperance. The workers also suffer from the effects of dust.

*Bookbinders.*—Excess occurs under cancer, gout, phthisis, valvular disease of the heart, bronchitis, other disease of the respiratory system, Bright's disease. It would appear that these workers suffer from the effects of alcohol, but the occupation is usually pursued under very dusty conditions, which partly determine the excess.

*Cotton manufacture.*—Excess occurs under rheumatic fever, cancer, phthisis, diabetes, disease of the nervous system, diseases of the circulation, bronchitis, pneumonia, diseases of the digestive system other than the liver, "other causes."

The occupation is attended, with great strain on the attention and in part with exposure to high temperatures and insufficient movement of air. The noises also are excessive. The portion of the workers concerned in heavy physical effort is small. These workers are often anæmic. There is probably a considerable amount of alcoholism, but it is not revealed by the above figures.

*Bleachers, printers, dyers.*—Excess occurs under cancer, phthisis, diabetes, disease of the nervous system, valvular disease of the heart, other disease of the circulation, bronchitis, pneumonia, disease of the digestion other than the liver, Bright's disease, and suicide.

These classes suffer, the bleachers from pulmonary irritation due to the bleaching agent, the dyers from a hot, moist atmosphere. It is difficult to see wherein the printers suffer. There is no evidence that the dyes used usually contain lead. Yet the figures given above suggest that plumbism is an element. These workers probably suffer as do cotton operatives from carelessness in their dress in going to and returning from work.

The excess under digestive disease suggests that there is a good deal of anæmia amongst these workers, as would be liable to happen in the dyeing room and in the bleaching processes. There is probably intemperance in the same manner and to the same extent as among cotton operatives. But this and other industries require closer study. It is not quite apparent where mental strain comes in. But it does evidently exist.

*Tailor.*—Excess occurs under gout, cancer, phthisis, diabetes, disease of the nervous system, other disease of the digestive system, Bright's disease, other urinary disease, and suicide. This combination occurring among tailors is quite conclusive as to the existence of intemperance.

This, coupled with the absence of care at work, will account for the high phthisis rate. The intermittent strain put on tailors along with intemperance may account for diabetes.

*Indiarubber, etc.*—Excess occurs under influenza, rheumatic fever, cancer, phthisis, disease of the nervous system, disease of the liver, other diseases of the digestive system, Bright's disease.

The combination strongly suggests alcoholism rather than occupational cause, although carbon bisulphide acts on the nervous system at least very much like alcohol. There is much exposure to damp.

The occupational excess is probably largely due to social conditions in the class of workers. Lead may be a factor.

*General labourers* have been included for comparison. They show excess under nearly every cause of death, very great under phthisis, pneumonia, bronchitis, valvular disease, other diseases of the circulation, alcoholism, disease of the nervous system, aneurism, and accident; great also under influenza, cancer, disease of the nervous system, other digestive diseases, Bright's disease, other disease of the urinary system, suicide.

This outline points the way to a special investigation into the occupational conditions in Manchester, which will be taken up as soon as time permits. It is evident that the conclusions arrived at need confirming or correcting and are bringing more nearly up to date. But no mere statistical enquiry in occupational death-rates suffices by itself for useful conclusions.

#### TUBERCULOSIS AND OCCUPATIONS.

Manchester has been afflicted to excess with two diseases of the lung—tuberculosis and pneumonia. It is on men that the relatively high incidence of mortality has fallen. There can be no question that it has been determined to a great extent by intemperance. But there have also been occupational factors, and it is therefore of considerable interest to see on what classes the incidence has fallen. From year to year there were taken out for notified cases of tuberculosis of the lungs the occupations followed at the time when infection probably occurred, and here is a summary for 1902–1906 of these records, which may be compared in the case of males with the corresponding numbers of workers in special employments.

NOTIFIED CASES OF PULMONARY TUBERCULOSIS (MALES) WITH OCCUPATIONS  
WHEN INFECTION PROBABLY OCCURRED.

OCCUPATION	1902	1903	1904	1905	1906	TOTAL
Bakers .. .. .	—	—	7	0	6	13
Barmen .. .. .	5	11	12	17	23	68
Brass and copper workers .. .. .	—	—	10	6	6	22
Brushmakers .. .. .	—	—	—	—	3	3
Building trades .. .. .	18	23	28	24	29	122
Carters .. .. .	—	—	21	20	23	64
Chemical (labourers) .. .. .	—	—	7	1	0	8
Clerks .. .. .	18	21	28	31	30	128
Coach drivers and cleaners .. .. .	—	7	3	6	9	25
Commercial travellers .. .. .	6	5	10	6	11	38
Colliers .. .. .	—	—	—	—	3	3
Cotton manufacture .. .. .	7	6	2	9	13	37
Deck (labourers) .. .. .	11	12	10	7	11	51
Dyeing .. .. .	12	10	10	10	12	54
French polishers .. .. .	—	—	11	8	10	16
Gas works employees .. .. .	8	4	0	4	8	24
General (labourers) .. .. .	—	53	67	104	115	339
Glass works .. .. .	5	2	5	7	2	21
Hairdressers .. .. .	—	—	4	2	1	7
Hawkers .. .. .	12	36	32	33	57	170
Horsekeepers .. .. .	—	—	—	6	5	11
House painters .. .. .	—	—	11	8	10	29
Ironworkers .. .. .	75	67	73	82	79	376
Leather trade .. .. .	—	—	4	1	5	10
Market porters .. .. .	18	22	24	26	29	119
Pattern card makers .. .. .	—	—	—	4	2	6
Plumbers .. .. .	—	—	6	5	6	17
Printers .. .. .	7	9	7	12	7	42
Pork butchers .. .. .	—	4	0	0	6	10
Railway employees .. .. .	12	14	15	9	22	72
Rubber workers .. .. .	9	15	11	15	8	58
Scholars and scholastic .. .. .	—	—	29	38	39	106
Shoemakers .. .. .	10	21	16	23	13	83
Shop attendants .. .. .	—	—	—	—	12	12
Soldiers .. .. .	10	21	17	17	16	81
Tailors .. .. .	18	20	11	13	14	76
Telegraphists .. .. .	—	—	—	—	2	2
Warehousemen .. .. .	45	37	37	35	44	198
Warehouse porters .. .. .	18	11	18	20	20	87
Whitesmiths .. .. .	—	—	—	7	6	13
Wood workers .. .. .	33	37	28	33	45	176
Total .. .. .	357	468	570	643	759	2797

— in this table means *not recorded*.

The above table gives a good idea of the contributions made to tuberculosis of the lung by different occupations. But it conveys little as to the rate of



incidence or mortality rate of the occupations. In 1906 I calculated out the death-rates for a great variety of occupations, using the Census populations, and taking the total number occupied at ages 15 and upwards. This procedure obscures the effect of occupations at early ages, when the age entrance varies. In occupations such as cotton manufacture, dye and bleach works, rubber works (in which the proportion occupied at advanced ages is small), it fails to reveal the real fatality of the disease, and in a less degree in ironworks. But it gives a rough idea of the occupations which suffer most heavily.

As regards males, the highest death-rates were :—

OCCUPATION	DEATH-RATE	POPULATION AT STAKE
Fustian cutters .. .. .	19·2	146*
General labourers .. .. .	15·5	8,420
Warehouse employees, porters, and errand boys..	12·0	5,985
Hawkers .. .. .	11·0	2,053
Masons, and masons' labourers .. .. .	9·8	901
Tobacco manufacture .. .. .	8·8	136
Tools—tool makers, file makers .. .. .	8·3	456
Coachmen and gardeners .. .. .	7·1	169
Boot and slipper makers .. .. .	6·6	2,263
Miscellaneous metal industries .. .. .	5·08	3,166
Printers, newsagents, booksellers, lithographic printers	4·6	2,599
Other sundry industries .. .. .	5·5	2,720
Coach, cabmen, grooms .. .. .	4·9	2,122
Paperhangers, painters, decorators.. .. .	4·3	3,151
French polishers .. .. .	4·7	2,700
Woodworkers .. .. .	3·61	6,863
Publicans .. .. .	4·0	1,543
Cellarmen and bar tenders .. .. .	4·0	1,366
Electricity supply, gas works service .. .. .	4·4	1,487
General shopkeepers, pawnbrokers .. .. .	4·5	659
Iron fitters, turners, moulders, brass founders, etc.	2·05	21,554
Commercial, other than clerks .. .. .	3·9	3,579
Making of dress .. .. .	3·91	9,462
Conveyance .. .. .	4·17	28,710
Total .. .. .	3·22	201,088

\* This was a dying industry and the workpeople were old.

The most striking feature is the very high death-rate of warehouse employees due to bad ventilation, imperfect lighting, and the presence of the dust of China clay. It may be recalled that China clay is used in dye, bleach, and print works and this may help to explain the high death-rate in that occupation. It may also form the link with cotton manufacture. The high death-rate in boot and slipper makers is due largely to the insanitary cellars in which their work was carried on.



The high death-rate in miscellaneous metal industries is no doubt due to the use of lead in some of them.

The previous discussion covers most of the other special occupations, but the whole subject, it is hoped, will be further dealt with in the course of next year.

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## THE MANCHESTER WATER SUPPLY.

The drinking water supplied by the Manchester Corporation to Manchester and to a number of other local authorities is moorland water, which on arrival in Manchester possesses a high degree of bacteriological and chemical purity. It is derived from the moorlands above Longdendale in Cheshire and Derbyshire, and from Lake Thirlmere. It receives no other treatment except that it is sedimented and passed through copper screens of fine mesh and is aerated by falling in a fine spray. Its character is modified by admixture with water derived from a number of springs. It is also modified and cleansed at ordinary times by passing over the coating of fine slime which forms in the pipes.

From the annual report of the Waterworks Committee it appears that the average daily quantity derived from the Longdendale valley in 1919 was 22,267,120 gallons, and from Thirlmere 27,718,528 gallons. The future supply when the works at Hawes Water are completed is estimated at 70,000,000 gallons. The supply to the City of Manchester in 1919 is given at 28,658,058 gallons per day.

As is well known, water of this character acts on lead, and occasionally it is discoloured, especially if any disturbance occurs in the pipes.

It is an event of extreme rarity for lead poisoning to be traced to the passage of this water through lead pipes, and then only under peculiar circumstances. Apparently a protective coating forms on the pipes, but in isolated instances, of which I can recall only two, water flowing through a considerable length of lead pipe has caused poisoning.

It might be supposed that these waters, though not causing any evident lead poisoning, would nevertheless produce an obscure effect on the health of the consumers.

I have analysed the death-rates from a number of causes, comparing them with those for England and Wales generally, but do not find any evidence that such is the case.

In the years 1891-1900 the total death-rate from Manchester exceeded that for England and Wales by 28 per cent., while the death-rate from urinary diseases had only an excess of 11 per cent., and the death-rate from nervous

diseases an excess of 5 per cent. From diseases of the digestive system the death-rate of Manchester was below that of the country generally by 11 per cent. This figure includes cirrhosis of the liver.

The following figures bear out the same point, and appear to show that there are no effects of lead on Manchester water not common to the whole country.

Comparison of death-rates in Manchester with those holding for England and Wales generally in the year 1918 from causes which would be influenced by failure to eliminate lead introduced into the system :—

Crude Death rates in 1918 per 1,000,000 living, from various causes	England and Wales	Manchester, estimating the Population 770,248	Manchester, estimated Population 665,807
Bright's Disease and Acute Nephritis	381	357	413
Cirrhosis of the Liver .. .. .	51	43	50
Cerebral Hæmorrhage .. .. .	738	653	536
Epilepsy .. .. .	194	123	143
Phthisis .. .. .	1,343	1,430	1,657
Pneumonia .. .. .	1,654	1,840	2,158
Abortion .. .. .	3	7	8
All causes .. .. .	17,560	15,814	18,295

Nevertheless, although the statistics do not point to any special effect on public health from the action on lead of the water supply, I have thought it advisable to send out the following handbill, which is distributed by the Health Visitors, and will be sent to the occupiers of new houses :—

#### CITY OF MANCHESTER.

##### *Suggestions to Householders.*

1. Whatever trouble it may involve, and however discouraging your surroundings, your house and yard (if any) should be kept clean throughout. Dirt is the greatest enemy to health.

2. If the yard is broken, or the drain stopped, and you cannot clear it, you should at once make complaint to the Public Health Office, 1, Mount Street, Albert Square.

3. If the doors, walls, floors, windows, or staircases of your house are broken or faulty, you should insist on having them put right. If you cannot get them put right, you should complain to the Public Health Office.

4. If the roof is defective, admitting rain, or if the walls are damp, you should complain to the Public Health Office.

5. If the floor, and walls near the floor, frequently show damp, the house is dangerous to live in.

6. The floors should be kept scrupulously clean. Hence you should not have a rag mat or other hearthrug which can lodge dirt, but use only washable materials, and wash them from time to time.

7. Vegetable and other refuse should not be allowed to accumulate in the house, but should be burned in the kitchen fire. Do not allow any accumulation of manure or vegetable refuse to take place anywhere near your dwelling. If you have reason to think that such accumulation is occurring, report it to the Sanitary Office, 1, Mount Street.

8. The contents of the chamber utensils should be emptied first thing in the morning, and it is necessary to remember that they may be dangerous to the inmates of the bedroom.

9. Bedrooms should be limewashed at least twice a year. This is a very important means of purifying rooms, in conjunction with light and fresh air. The rooms should be limewashed, not whitewashed.

10. Light and moving fresh air are the great purifiers, and are necessary to the maintenance of health.

11. Additional light can generally be secured by keeping the surfaces of the back yards and all other accessible surfaces in the rear of the house limewashed. This also destroys infectious impurities.

12. You should choose a house which is not darkened by adjoining buildings.

13. As far as possible, all curtains should be removed from living and bedrooms during the daytime, and where this cannot be done they should be of fine texture, so as to let as much light through as possible.

14. To get as much moving fresh air as possible, you should keep your living room windows open wide during summer, and as far as possible during the rest of the year.

15. The bedrooms should be generally left open all night, except during fog, and whilst the occupants are dressing or undressing. They should always be wide open during the daytime, except in fogs, or when much smoke or dust is being blown in. "Sand rollers" should not be put on the window frames to stop fresh air from coming in.

16. *Food.*—The utmost care should be exercised in feeding young children. (A paper of instructions may be had on application.) All food should be kept in a dry and well-aired place. Milk should be scalded when brought into the

house, and then covered over, and should not be kept for more than twelve hours before use. Soups should not be used after standing in the house without being again boiled.

17. Alcohol should be avoided, except for old people, and in case of illness. The too free use of alcohol by degrees undermines the health, and takes away the pleasure and usefulness of life.

18. As far as you can, use fresh meat, poultry, game, and fish, rather than potted or tinned foods; and use plenty of potatoes, turnips, carrots, cabbage, onions, and other cooked vegetables, as your means may allow. Do not allow your food to be handled by persons known to be suffering from any infectious disease.

19. *Water*.—Before filling a vessel with water for drinking or cooking purposes, let the tap run a little, and especially clear the pipes first thing in the morning. Never use water from hot-water pipes for cooking purposes or making tea.

20. *Sickness*.—Never neglect illness, especially in children. Get medical advice, and follow it.

21. *Advice*.—If you need other advice or assistance, apply to the Secretary to the City League of Help, Brazennose Street, who will advise you.

JAMES NIVEN,  
*Medical Officer of Health.*

Public Health Office,  
Manchester, April, 1918.

#### RIVERS AND STREAMS.

No pollution of an offensive character was noted during the year 1919. The ordinary flow of sewage is treated at Davyhulme and Withington chiefly by the contact-bed method. But experiments are in progress at both sewage treatment areas which give hopes that the ordinary flow of sewage will in the future be successfully treated by the activated-sludge method (aeration).

No sewer accidents occurred in 1919.

Full details of the processes followed are given in the accompanying report of the Rivers Department.

#### MANCHESTER MAIN DRAINAGE.

The City Engineer, Mr. Bertram Meek, has kindly furnished me with the following statement:—

The existing intercepting sewers in Manchester having been found to be inadequate, the Corporation in 1911 obtained Parliamentary Powers to construct a Main Drainage Scheme which would meet the requirements of the City, as far as could be foreseen, for the next 50 years.



Work was started on this scheme in March, 1912, and at the time of the outbreak of war, in 1914, about 50 per cent. of the total mileage of the contemplated scheme was completed.

In 1914, owing to the war, practically all work on the Main Drainage Scheme was suspended, only very little work being allowed to go on to couple up sections already constructed. As soon after the cessation of hostilities as possible the Corporation proceeded to complete their Main Outfall Sewer, and a contract for this was let in July, 1919, and the work is now proceeding. This work should be completed in about a year. The Corporation also contemplated carrying a main trunk sewer through the heart of the City and along Rochdale Road to Blackley to relieve the existing Irk Valley Sewer, which is totally inadequate to deal with the amount of drainage and storm-water of this district.

Owing to the extraordinary rise in prices, both as regards labour and materials, it was found that the estimate prepared in 1911 was insufficient to meet the cost of the work at the present time, and that after providing for the work now in hand on the Main Outfall Sewer the Corporation would require a further amount of money to go on with the sewer through the centre of the City to Blackley. An application to be allowed to borrow a further amount was made to the Ministry of Health in February, 1920, and it is believed that that application has received the approval of the Ministry and now only awaits confirmation by Parliament.

It is of the utmost importance that the length of the Main Outfall Sewer now in hand should be completed and that the trunk sewer should be laid through the City to Blackley, as a considerable amount of flooding of cellars takes place in the area served by the present Irk Valley Sewer, and the Corporation are also contemplating large Housing Schemes in the district of Blackley, which will be served by the new sewer when constructed.

When the scheme sanctioned by Parliament in 1911 is completed the drainage of the City of Manchester, as far as can be seen at the present time, will be adequate for many years to come.

As regards house drainage, all the house drains of the older portions of the City have been practically entirely reconstructed during the last 25 years, while at the same time most of the passages in the rear of houses have been re drained and repaved, pail closets being at the same time replaced by water-closets.

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#### CLOSET ACCOMMODATION.

The following table shows the manner in which the conversion was effected from pails and middens in the City to water-closets. This conversion was accompanied by the necessary alterations in house drains, passage drains,



paving of passages, and in the houses themselves. These alterations cannot be exhibited in tabular form, at all events so far as drainage and paving is concerned :—

RETURN OF PAIL-CLOSETS AND MIDDEN-PRIVIES ALTERED TO WATER-CLOSETS.

		Number of Pail Closets altered to Water-Closets	Number of Midden-Privies altered to Water-Closets	Number of Slop Water-Closets altered to Water-Closets
From April 1st, 1891, to March 31st, 1892		16	39	—
„ „ 1892, „ 1893		98	100	—
„ „ 1893, „ 1894		138	141	—
„ „ 1894, „ 1895		179	89	—
„ „ 1895, „ 1896		185	119	—
„ „ 1896, „ 1897		197	284	—
„ „ 1897, „ 1898		179	405	—
„ „ 1898, „ 1899		136	960	—
„ „ 1899, „ 1900		249	897	—
„ „ 1900, „ 1901		180	1,327	—
„ „ 1901, „ 1902		385	999	—
„ „ 1902, „ 1903		976	1,282	—
„ „ 1903, „ 1904		1,899	1,379,	—
„ „ 1904, „ 1905		2,222	1,691	—
„ „ 1905, „ 1906		3,297	2,600	—
„ „ 1906, „ 1907		3,746	3,662	—
„ „ 1907, „ 1908		1,296	918	—
„ „ 1908, „ 1909		10,081	2,844	—
„ „ 1909, „ 1910		11,296	1,378	45
„ „ 1910, „ 1911		8,552	1,204	217
„ „ 1911, „ 1912		6,970	*3,180	121
„ „ 1912, „ 1913		4,214	533	153
„ „ 1913, „ 1914		1,420	78	14
„ „ 1914, „ 1915		428	61	3
„ „ 1915, „ 1916		155	14	—
„ „ 1916, „ 1917		29	6	—
„ „ 1917, „ 1918		3	—	—
„ „ 1918, „ 1919		76	13	—
„ „ 1919, „ 1920		1	—	—
		—	—	—
Total (85,359)....		58,603	26,203	553

\* Includes Gorton and Levenshulme.

RETURN SHOWING THE NUMBER OF PAIL-CLOSETS, MIDDEN-PRIVIES, AND SLOP WATER-CLOSETS REMAINING TO BE ALTERED TO WATER-CLOSETS ON APRIL 1ST, 1920 :—

Pails	.. .. .	1,326
Midden-Privies	.. .. .	48
Slop Water-Closets	.. .. .	32

The above gives the total number of converted closets as 85,359.

The small number of unconverted closets remains for two reasons : A minority are in situations where no drainage is obtainable ; the majority of the above are in connection with houses which require structural alterations, suspended during the war. But it will be seen that, with the above exceptions, Manchester is now entirely water-closeted.

The total number of closets in the City at the present time is estimated by the Waterworks Department at 216,267, of which 172,476 are in houses, 3,791 in warehouses, workshops, etc. Thus about half of the water-closets in houses were put in when the houses were built, and half are the result of conversions since 1891.

Any one who has been long enough in Manchester to remember the sickening tætor and squalor which existed in Manchester, especially in the passages behind the houses, and the closeness and deadness of the atmosphere at that time, will appreciate how much has been accomplished by the Public Health Committee by their housing reconstructions, and by the conversion of closets, the paving of house yards and passages, and the general reconstruction of house drains. Nevertheless the time is now beginning when the houses in the centre of the City must be regarded as having served their turn and as ripe for replacement by better habitations.

### SCAVENGING.

At page 254 is given a statement by the Superintendent of the Cleansing Department on the work of his department, on the lines indicated in the Ministry's circular.

Owing to labour difficulties there has been some relaxation in the regularity and completeness with which street cleansing has been carried out, though this is more than made up for in main thoroughfares by the substitution of motor for horse traction.

This statement holds good also for the collection and removal of domestic refuse, and for the substitution of ashbins with proper cover for other and unsatisfactory modes of storing domestic refuse.

Considerable amounts of putrefiable and combustible material are still deposited on tips within the City. The provision of furnaces adequate to the destructing of all such material, not readily conveyable from the City, remains, as in previous years, a matter of great urgency.

The deposit of any such material leads to the occurrence of very offensive fires in tips, and otherwise to nuisance, and is a serious obstacle to the destruction of rats. The importance of this question is emphasised by the recent occurrence of a case of plague in Liverpool, of which, so far as I am aware, the origin has not been traced. Made up land may, in my opinion, be unfit for building on after 50 years have elapsed.

#### PREMISES AND OCCUPATIONS WHICH CAN BE CONTROLLED BY BYE-LAWS OR REGULATIONS.

Building bye-laws made under Section 157 of the Public Health Act, 1875. Building bye-laws were originally made in the year 1846. They did not provide for damp-proof courses, and were of a very elementary character. The first effective bye-laws were made in 1870. These were carefully revised, altered and extended in 1907. *Inter alia*, the requirements for water-closets and house drains are set forth with precision. The amount of open space about houses does not accord with present-day views, but may be regarded as compatible with good health provided other sanitary requirements are fulfilled.

*Bye-laws made under the Factory and Workshops Act, 1901*, with respect to means of escape in case of fire. Particulars are given in the section relating to Factories and Workshops (page 61). In the annual report for the year 1918 this statement is made: "A large amount of work has been done under these bye-laws, and practically the whole of the factories and workshops have been dealt with." Powers are now desired for dealing with (a) offices, (b) houses let in lodgings. These bye-laws were obtained in the year 1913, and were fully considered both by the Local Government Board and locally. Their administration is strictly and well carried out.

#### *Bye-laws re Manure.*

These have been most valuable in enabling us to exercise stricter supervision over the regular removal of horse manure not less seldom than once a week. To this, in great measure, must be ascribed the striking fall in diarrhoea

mortality which has occurred in Manchester. Great difficulty has been experienced during the war in getting them carried out, owing to lack of transport, but means were found in great measure to overcome these difficulties.

#### *Sanitary Inspection of District.*

The return here called for is given on page 60.

#### *Premises and Occupations which can be controlled by Bye-laws or Regulations.*

(a) *Houses Let in Lodgings.*—The bye-laws relating to this matter are administered by the Public Health Committee, and three inspectors are appointed for the purpose. The cases arising under the bye-laws are heard twice a month by the Committee, and prosecutions ordered. See Sanitary Superintendent's report (page 65).

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## REPORT OF THE SANITARY DEPARTMENT.

Herewith are submitted tables prepared by the Sanitary Deputy Superintendent, showing the work done in that department, which has now been placed by the Public Health Committee under the Medical Officer of Health. Table C, relating to housing, is practically a blank. The house famine continues unabated, and it is impossible for the Corporation to demolish houses at present, except to fulfil urgent needs, or because they are structurally dangerous. The housing survey is being carried out in another department.

As regards the dairies, cowsheds, and milkshops regulations, I have considered it advisable to place these immediately under the supervision of Dr. W. A. Young, D.S.O. When this was done Lieut.-Col. Brittlebank had not returned from Service, but he has now resumed supervision of the City farms.

Mr. Harri Heap, M.Sc., has been appointed Public Analyst in place of Mr. Estcourt, who has resigned. Mr. Heap will continue to work in Professor Delépine's laboratory, though, so far as the Corporation is concerned, in an independent capacity. Dr. McClure will give oversight to this part of the work.

The smoke nuisance increased greatly during the war, but it may now be expected to diminish. The increased nuisance has led to increased consideration of the steps needed for its reduction.



TABLE A, 1919.—WORK OF SANITARY DEPARTMENT FOR THE YEAR.

TOWNSHIPS																						TOTALS
Complaints to Sanitary Superintendent ...	Ancoats	Central	St. George's	Cheetham	Crumpsall	Blackley	Harpurhey	Moston	Newton	Bradford	Beswick	Clayton	Ardwick	Openshaw	Gorton (West)	Rusholme and Kirkmanshulme	Chorlton-upon-Medlock	Hulme	Moss Side	Withington	Levenshulme	Gorton
Dwelling-houses	812	150	833	758	168	103	166	319	661	430	130	197	350	246	293	826	502	1945	406	370	106	293
Newly-infected Dwelling-houses	3352	1410	2556	2069	884	766	997	2136	4331	1039	622	1511	3416	1209	2061	2348	2801	4662	1868	1140	604	992
Cellars	175	105	302	254	51	75	112	166	339	84	62	83	255	184	292	340	212	660	170	234	295	4706
Schools	5	13	131	6	...	...	...	...	...	...	...	...	...	...	1	44	...	336	5	...	...	541
Factories and Workshops	4	2	...	2	...	1	...	2	2	1	3	1	3	4	1	4	1	34	...	5	1	2
Lodging-houses	19	84	52	7	...	10	6	2	40	1	...	2	47	11	...	18	6	162	8	10	2	7
Offensive Trades	2815	4815	4914	2359	...	44	6	12	115	300	257	65	377	32	10	124	3534	3105	224	...	3	...
Dairies and Milkshops	2	...	19	1	...	2	...	...	56	10	...	95	...	3	1	...	2	33	...	6	...	88
Ice Cream Manufactories	223	312	514	396	59	93	281	65	93	123	57	89	306	212	222	241	415	603	331	249	62	353
Bakehouses	872	11	124	8	...	...	2	2	2	15	...	...	39	19	26	...	23	5	3	2	...	...
Canal Boats	63	116	103	274	28	66	48	78	90	48	24	38	79	92	54	130	189	213	153	179	107	167
Slaughter-houses	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tips for Refuse	...	...	3	...	...	1	...	...	2	...	...	...	...	...	...	1	...	...	...	...	...	...
Miscellaneous Inspections	...	...	...	11	14	...	...	...	3	...	...	...	...	12	...	...	1	...	...	3	...	44
Stables, &c.	1024	660	687	991	150	220	200	443	503	75	650	175	554	1481	210	631	1307	1378	757	986	998	572
Factories and Workshops by Shop Hours, &c., Inspectors	184	88	122	78	196	17	13	20	96	8	55	127	30	6	60	155	249	334	63	69	40	804
Shops by Shop Hours, &c., Inspectors	732	5560	1438	3180	94	117	197	157	349	132	73	88	419	154	275	438	1289	774	507	418	118	189
Infected Rooms Disinfected	512	1956	1259	1647	217	261	449	336	655	363	268	155	724	564	595	657	942	850	362	229	333	805
Infected Dwellings Re-inspected	2295	465	1075	1324	140	196	313	508	883	524	501	283	720	564	1304	1033	627	2141	688	740	494	659
Drains Tested by Water	1615	764	2016	1771	194	271	308	759	1194	497	400	251	1330	700	1075	1067	393	2021	908	769	461	918
Smoke { Observations made	23	17	11	18	8	7	21	14	14	25	6	1	23	10	21	41	38	18	76	139	33	19
Abatement { Proceedings before Magistrates	52	56	20	25	8	33	10	4	38	34	5	64	21	45	5	9	31	10	5	2	3	3
Food Adul- { Samples Collected for Analysis	5	8	4	2	1	4	2	...	8	7	1	10	2	5	...	2	3	1	1	...	...	2
teration { Proceedings before Magistrates	114	302	77	118	54	36	49	54	110	58	27	62	94	181	121	187	325	329	247	295	112	137
Asphits reported to Cleansing Department for emptying	2	14	3	12	1	...	1	...	3	1	...	3	2	3	1	1	4	4	8	14	6	6
Receptacles reported to Cleansing Department for emptying	...	...	...	1	...	...	...	...	...	...	...	...	...	...	...	2	1	6	9	...	...	...
Notices issued for Abatement of Nuisances.	2	2	3	6	2	...	...	...	4	...	...	...	1	5	1	3	10	19	2	...	1	...
Letters written for Abatement of Nuisances	703	298	734	839	57	111	153	254	632	450	203	130	494	290	385	479	696	978	215	272	202	323
Reports made to Medical Officer of Health	131	103	123	139	9	28	21	13	44	68	11	41	51	53	15	33	101	113	14	7	7	23
Legal proceedings taken	...	...	...	16	4	2	2	2	2	2	...	...	4	4	25	5	1	4	9	309	3	151
Total Nuisances abated	20	30	24	37	...	...	...	1	...	2	4	...	15	1	...	...	31	19	...	3	...	190
	543	250	578	725	38	83	120	242	520	309	174	122	472	297	248	274	616	893	161	255	206	258
																						7492

Inspections of

TABLE B.

Annual Report of the Medical Officer of Health for the year 1919, for the County Borough of Manchester, on the administration of the Factory and Workshop Act, 1901, in connection with

FACTORIES, WORKSHOPS, WORKPLACES, AND HOMEWORK.

I.—INSPECTION OF FACTORIES, WORKSHOPS, AND WORKPLACES.

*Including Inspections made by Sanitary Inspectors or Inspectors of Nuisances.*

Premises	Number of		
	Inspections	Written Notices	Prosecutions
Factories (including Factory Laundries)... ..	16732	99	1
Workshops (including Workshop Laundries)...			
Workplaces (other than Outworkers' premises included in Part 3 of this Report) ... ..			
Total ... ..	16732	99	1

2.—DEFECTS FOUND IN FACTORIES, WORKSHOPS, AND WORKPLACES.

Particulars	Number of Defects			No. of Prosecutions
	Found	Remedied	Referred to H.M. Inspector	
<i>Nuisances under the Public Health Acts :—*</i>				
Want of cleanliness ... ..	790	777	...	...
Want of ventilation ... ..	...	...	...	...
Overcrowding ... ..	...	...	...	...
Want of drainage of floors ... ..	...	...	...	...
Other nuisances ... ..	181	173	...	...
Sanitary accommodation—				
Insufficient ... ..	52	7	...	...
Unsuitable or defective... ..	286	231	...	1
Not separate for sexes ... ..	10	7	...	...
<i>Offences under the Factory and Workshop Act :—</i>				
Illegal occupation of underground bakehouse (S. 101) ... ..	...	...	...	...
Breach of special sanitary requirements for bakeries (SS. 97 to 100) ...	315	313	...	...
Other offences (excluding offences relating to outwork which are included in Part 3 of this Report)	308	284	...	...
Means of escape in case of fire (insufficient) ... ..	85	13	...	...
Total ... ..	2027	1805	...	1

\* Including those specified in sections 2, 3, 7, and 8 of the Factory and Workshop Act as remediable under the Public Health Acts.

## 4.—REGISTERED WORKSHOPS.

Workshops on the Register (S. 131) at the end of the year		Number
Important classes of workshops, such as workshop bakehouses, may be enumerated here.	Workshops . . . . .	3795
	Bakehouses . . . . .	634
	Total number of Workshops on Register ...	4429

## 5.—OTHER MATTERS.

Class	Number
Matters notified to H. M. Inspector of Factories :—	
Failure to affix Abstract of the Factory and Workshop Act (S. 133) . . . . .	142
Action taken under Sec. 5 of the Factory and Workshop Act in matters referred by H. M. Inspector as remediable under the Public Health Acts :—	
Notified by H. M. Inspector . . . . .	94
Reports (of action taken) sent to H. M. Inspector . . . . .	94
Other . . . . .	461
Underground Bakehouses (S. 101) :—	
In use at the end of the year . . . . .	29
Not in use at the end of the year . . . . .	18
Demolished . . . . .	...

NOTE.—The Factory and Workshop Act, 1901 (S. 132), requires the Medical Officer of Health in his Annual Report to the District Council to report specifically on the administration of that Act in workshops and workplaces, and to send a copy of his Annual Report, or so much of it as deals with this subject, to the Secretary of State (Home Office). If the Annual Report is presented otherwise than in print, it is unnecessary to include in the copy sent to the Home Office the portions which do not relate to factories, workshops, workplaces, or homework. The duties of Local Authorities and the Medical Officer of Health under the Act of 1901 are detailed in the Home Office Memorandum of December, 1904. A further Memorandum, on the Home Work Provisions of the Factory Act, was issued to all District Councils and Medical Officers of Health in October, 1906.

I append a brief Statement on the Memorandum of the Home Office upon the Structural requirements of the Factory and Workshop Acts, as

## 1. Means of escape from fire :

Bye-laws have been in operation since 1908. These have been amended and in their amended form were approved by the Local Government Board 1913.

A large amount of work has been done under these bye-laws, and practically the whole of the factories and workshops have been dealt with.

## 2. Sanitary accommodation :

Although the work has not been carried out under the Sanitary Accommodation Order, 1903, the conditions stated in the Memorandum have been enforced and all the factories and workshops have been dealt with, although changes are constantly occurring.





TABLE C.  
HOUSING REQUIREMENTS IN THE CITY OF  
MANCHESTER.

The figures are summarised below.

The number of houses certified to, and dealt with by, the Housing Committee from February, 1885, to December 31st, 1919:—

	Number Certified and ordered to be Closed	Number of Houses added together or to other Houses	Number Demolished	Number Repaired and Re-opened	Number Closed	Number not Closed	Number which stand Adjourned
Totals.. ..	27301	3409	6744	13376	1349	2325	98

The extent to which these operations have been reduced is seen from the corresponding figures relating to 1919:—

Totals.. ..	7	..	..	..	..	7	.
-------------	---	----	----	----	----	---	---

The number of conversions from pail-closets and midden privies to water closets is given herewith:—

From April 1st, 1903, to March 31st, 1919 .. ..	75,245
From April 1st, 1918, to March 31st, 1919 .. ..	89

The numbers still requiring to be replaced are—middens, 35; pail-closets, 1,327.

THE FOLLOWING TABLE SHOWS THE RESULTS OF INSPECTION OF HOUSES REPORTED TO THE HOUSING SUB-COMMITTEE AS UNFIT FOR HUMAN HABITATION DURING THE YEAR 1919.

Number of Dwelling-houses inspected for all purposes .. ..	47,391
„ considered by the District Inspector of Nuisances unfit for human habitation .. .. .	
„ of representations made by the Sanitary Superintendent under a Local Act .. .. .	
„ of Closing Orders made .. .. .	
„ of Dwelling-houses the consideration of which stand adjourned .. .. .	
„ put in a fit state for human habitation after Closing Order had been made .. .. .	

General character of defects stated to exist :—

Ventilation defective .. .. .	..
Closet accommodation defective .. .. .	..
External disrepair .. .. .	7
Internal disrepair .. .. .	7
Drainage defective .. .. .	..
Dampness .. .. .	7
Water supply defective .. .. .	..
Dirty—always immediately cleansed .. .. .	..
Arrangement for deposit of refuse defective .. .. .	..
Yards require paving .. .. .	..

The number of new houses certified during the years 1916–1917 is 19, as compared with 119 in 1915–1916, 410 in 1914–1915, 748 in 1914, 997 in 1913, and 1,072 in 1912.

In neighbouring areas 29 new houses were certified during 1919 against 0 in 1918, 8 in 1917, 52 in 1916, whilst in 1915 the number was 238.

## REPORT BY MR. H. DALE, DEPUTY-SUPERINTENDENT OF THE SANITARY DEPARTMENT.

Public Health Department  
(Sanitary Section),  
Town Hall, Manchester.

In presenting to the Medical Officer of Health the report of the work transacted in the Sanitary Department for the year ending 31st March, 1919, I beg to state that the City, for inspection and other purposes, is divided into 33 Districts, to each of which one Sanitary Inspector has been assigned.

In addition to these, there is a Superintendent, a Deputy Superintendent, one Chief Inspector, one Drainage, four Smoke, one Canal Boats, four Lodging-house, three Adulteration of Food, two Milkshops, ten Factory and Workshops Inspectors, including two Female Inspectors, and two Drain Examiners. There is also a staff of 30 Clerks for clerical and other work.

In the Drainage Department there is also a Chief Inspector, three Clerks, and two Clerks of Works for supervising and measuring up work done by the contractors employed by the department in carrying out private drainage work.

The number of complaints of nuisances of various kinds made during the year was 5,741 :—

1,772 through the Medical Officer of Health's Department.

3,957 by the public.

12 through the Police.

### HOUSES LET IN LODGINGS.

Under the powers given by Section 90 of the Public Health Act the bye-laws made thereunder have been enforced.

The number of houses on the register is 2,071. To these 22,813 day visits and 572 night visits have been paid. 246 infringements of the regulations have been reported and dealt with.

## DAIRIES, MILKSHOPS, AND COWSHEDS REGULATIONS.

Under the Order, which was made in July, 1879, and the Regulations made thereunder in 1896, 2,422 milkshops and dairies and 92 cowkeepers are now on the register. The number of cows kept is 1,329. The number of visits to dairies, milkshops, and cowsheds was 5,461. Eighteen infringements of the regulations have been reported and dealt with, also 144 cases against Milk sellers for infringing the Milk (Prices) Orders, 1917 and 1918, were reported to the Committee; of these, 39 were summoned before the magistrates and 105 cautions were given by the Committee.

The number of ice-cream manufacturers on the Register is 488. The number of visits was 810. No cases were reported to the magistrates for infringement of the regulations.

## WORKSHOPS, BAKEHOUSES, SHOPS ACTS, AND ORDERS MADE THEREUNDER.

**Workshop Acts** During the year the Factory and Workshop Act of 1901 has received the careful attention of the Male and Female Inspectors specially appointed for the duties, the Female Inspectors devoting a large portion of their time to visiting the 2,263 houses of outworkers in the City.

**Means of Escape in case of Fire** Provision for means of escape in case of fire in factories and workshops has also received attention, and all known cases of danger have been dealt with.

Periodical changes will, of course, from time to time take place in various ways which will bring buildings within the meaning of the Act, and necessitate the constant supervision of the Inspectors and action on the part of the Authorities.

**Bakehouses** The number of bakehouses in the City is 633; of these, 47 are situated in basement premises, and special attention has been given to them.

**Shops Act** The Shops Act, which came into force on the 1st May, 1912, has received attention, registers of all shops having been prepared. Orders of Exemption from compulsory closing have been made in 33 trades. In 5 trades Orders have been made fixing the day for the weekly half-holiday, and in 3 trades Orders have been made fixing the closing hour for the several days of the week.

**Outworkers** Many visits have been paid to houses in various parts of the City in which outwork is carried on, as will be seen on reference to the following tabulated statement, but constant visitation is necessary to maintain the standard of cleanliness which is to be desired, especially in houses in which shirt-making, handkerchief-hemming, brace-making, and umbrella-covering, etc., is done.

The people, as a rule, appear willing to carry out any suggestion made by the Inspectors to keep their houses clean; but at the same time it is almost impossible for small houses, sometimes containing large families, to be kept in such a satisfactory condition as workshops.

The work done under the above Acts is shown in the following tables:—

Inspector	SHOPS				WORKSHOPS				BAKEHOUSES				OUT- WORKERS			
	Number of Districts	Number of cases in which Magisterial proceedings have been taken	Number cautioned by Committee	Number of cases in which Magisterial proceedings have been taken	Number of cases reported to the Factory Inspector	Number of Infringements reported to the Committee	Number of cases in which Magisterial proceedings have been taken	Factories and Workshops not provided with proper means of escape in case of fire	Means of escape in case of fire not being maintained in accordance with the requirements of the Act	Number visited	Number of premises in which Sanitary defects were found	Number of reports referred to Factory Inspector	Number of Infringements reported to the Committee	Number of cases in which Magisterial proceedings have been taken	Number of visits to houses where outworkers are employed	Number of houses found dirty
1	(a) Leonard Illingworth...	443	...	...	907	87	40	...	...	12	58	7	...	...	...	...
2	(b) Richard Tolson .....	424	...	...	592	34	18	...	...	4	17	4	...	...	...	...
3	Alfred Campbell.....	2187	...	...	1386	121	52	...	...	22	148	8	...	...	...	...
4	Thomas Nicholson .....	2483	...	...	1207	86	57	...	...	34	392	63	...	...	...	...
5	(c) Thomas A. Linfoot .....	...	...	...	...	...	...	...	...	...	499	...	...	...	...	...
6	George Vernon .....	2467	...	...	1474	62	36	...	...	4	7	4	...	...	...	...
7	Ernest Dooley .....	22	...	...	59	8	2	...	...	1	223	...	...	...	...	...
8	Francis J. Rowe.....	1736	...	...	1874	75	69	...	...	48	...	...	...	...	...	...
...	Mrs. Rosa G. Clift .....	689	...	...	651	23	3	...	...	...	...	...	...	...	5515	13
...	Miss Ethel Harrison...	676	...	...	1146	94	2	...	...	...	...	...	...	...	4127	36
TOTALS	11127	...	...	2	9246	590	279	...	...	18	1361	183	11	...	9642	49

Totals on Registers—Shops, 22,141; Workshops, 3,608; Bakehouses, 633.

(a) Engaged on Munition Work until December 2nd, 1918.

(b) With H.M. Forces until January 13th, 1919.

(c) With H.M. Forces the whole of the period.

(d) With H.M. Forces until March 24th, 1919.



SHOWING THE NUMBER AND CLASSIFICATION OF PERSONS EMPLOYED AS  
OUTWORKERS BY FIRMS WITHIN THE CITY, AND THE NUMBER OF  
SUCH FIRMS.

TRADES	No. of Employers	No of Outworkers or Contractors employed
Makers of Wearing Apparel ... ..	400	2270
Button Carding ... ..	1	4
Cabinet Makers and Upholsterers ... ..	3	6
Cleaning and Washing ... ..	1	1
Dolls and Toys ... ..	1	48
Fent Sorters ... ..	1	4
Hair Pad and Frame Makers ... ..	1	1
Handkerchief Hemmers ... ..	18	75
Lace, Lace Curtains, and Nets ... ..	1	5
Opticians ... ..	1	1
Paper Bags and Box Makers... ..	2	3
Quilt, Cushion, &c., Makers ... ..	7	47
Umbrella Trimmers... ..	18	120
Window Blinds ... ..	1	1
<b>Totals ... ..</b>	<b>456</b>	<b>*2586</b>

\* 2263 of these are in the City, the remainder are in the districts of other Local Authorities  
to whom lists showing the names and addresses have been sent.

VIEWING THE PROCEEDINGS TAKEN UNDER THE PROVISIONS OF THE ADULTERATION  
OF FOOD AND DRUGS AND THE MARGARINE ACTS.

ARTICLE	Number of Samples Obtained	Number Adulterated	Number not Adulterated	Number Sum- moned before Magistrates	Number Fined	Number Ordered to Pay Costs only	Number Dismissed or Withdrawn	Number Cautioned by Committee	Amount of Fines Imposed			Amount of Costs Ordered to be Paid		
									£	s.	d.	£	s.	d.
Wheat and Corn Flour	18	...	18	...	...	...	...	...	...	...	...	...	...	...
Starch Powder	47	...	47	...	...	...	...	...	...	...	...	...	...	...
Butter Dripping	1	...	1	...	...	...	...	...	...	...	...	...	...	...
...	17	...	17	...	...	...	...	...	...	...	...	...	...	...
...	50	...	50	...	...	...	...	...	...	...	...	...	...	...
...	152	26	126	...	...	...	...	...	...	...	...	...	...	...
Flavored Oil	12	...	12	...	...	...	...	...	...	...	...	...	...	...
Oil	5	...	5	...	...	...	...	...	...	...	...	...	...	...
...	15	...	15	...	...	...	...	...	...	...	...	...	...	...
...	117	...	117	...	...	...	...	...	...	...	...	...	...	...
Liver Oil	13	...	13	...	...	...	...	...	...	...	...	...	...	...
...	189	...	189	...	...	...	...	...	...	...	...	...	...	...
Stationery & Minced Meat	62	...	62	...	...	...	...	...	...	...	...	...	...	...
...	128	...	128	...	...	...	...	...	...	...	...	...	...	...
...	36	...	36	...	...	...	...	...	...	...	...	...	...	...
...	102	...	102	...	...	...	...	...	...	...	...	...	...	...
...	2	...	2	...	...	...	...	...	...	...	...	...	...	...
...	13	...	13	...	...	...	...	...	...	...	...	...	...	...
Supplies and Sauces	18	...	18	...	...	...	...	...	...	...	...	...	...	...
...	56	...	56	...	...	...	...	...	...	...	...	...	...	...
Starch	42	...	42	...	...	...	...	...	...	...	...	...	...	...
(tinned and prepared)	10	...	10	...	...	...	...	...	...	...	...	...	...	...
...	1247	74	1173	69	44	5	14	6	237	3	0	58	4	2
Condensed)	10	...	10	...	...	...	...	...	...	...	...	...	...	...
(skimmed)	3	2	1	2	2	...	...	...	20	0	0	1	11	0
Drinks, Waters, Cordials, &c.	34	...	34	...	...	...	...	...	...	...	...	...	...	...
...	20	...	20	...	...	...	...	...	...	...	...	...	...	...
...	44	...	44	...	...	...	...	...	...	...	...	...	...	...
Oil	4	...	4	...	...	...	...	...	...	...	...	...	...	...
Barley	15	...	15	...	...	...	...	...	...	...	...	...	...	...
...	55	...	55	...	...	...	...	...	...	...	...	...	...	...
...	11	...	11	...	...	...	...	...	...	...	...	...	...	...
Cassia, &c.	119	...	119	...	...	...	...	...	...	...	...	...	...	...
...	5	...	5	...	...	...	...	...	...	...	...	...	...	...
...	32	...	32	...	...	...	...	...	...	...	...	...	...	...
...	92	...	92	...	...	...	...	...	...	...	...	...	...	...
...	24	1	23	...	...	...	...	...	...	...	...	...	...	...
...	56	...	56	...	...	...	...	...	...	...	...	...	...	...
... and Golden Syrup	10	...	10	...	...	...	...	...	...	...	...	...	...	...
...	31	...	31	...	...	...	...	...	...	...	...	...	...	...
...	29	...	29	...	...	...	...	...	...	...	...	...	...	...
TOTALS	2946	*103	2843	71	46	5	14	6	257	3	0	59	15	2

In 32 of these cases no Magisterial proceedings were taken; 26 samples of Butter, 5 samples of Milk, and 1 sample of Sugar having been taken informally.

In addition to the above, 250 samples of Milk have been procured from Farmers' cans by the Sampling Officers for bacteriological examination under the Milk Clauses of the Manchester General Powers Acts.

*Fertilizers and Feeding Stuffs Act, 1906.*

Five samples were procured under this Act, which were submitted to Mr. H. Heap, Analyst, all of which were reported on as complying with the Act.

## SMOKE NUISANCES.

For the abatement of smoke nuisances the four Inspectors appointed specially for this work have taken 654 timed observations of half-an-hour each, with the result that 72 notices for the abatement of nuisances have been served. Proceedings before the Magistrates have been ordered in 39 cases out of 431 offences reported. The number of offenders cautioned or excused was 394.

The abnormal number of offenders cautioned was due to the leniency on the part of the Committee, owing to a large number of firms being engaged on war munition work.

Thirty-seven were summoned before the Justices, in 27 of which fines were imposed amounting to £47, and costs £3 12s.

Eight orders of abatement were granted and served, and two cases were pending.

Much attention during the past year, as will be seen by the above, has been given to the nuisance caused by the emission of black smoke, not only from the furnaces connected with boilers in mills, warehouses, and other works, but also from chemical and other industries, and the efforts made have already resulted in a considerable reduction of the nuisance.

Chimneys of firms in adjoining districts have also been observed in regard to smoke nuisances, and communications sent to the Authorities concerned.

## CANAL BOATS ACTS.

The number of canal boats on the register is 431.

The number of inspections made was 2,160.

Caution notices were sent to the owners or masters of 56 boats.

## OFFENSIVE TRADES.

The number of offensive trades on the register is 890. These have been placed under close supervision, and periodical visits paid.

## UNHEALTHY DWELLINGS.

During the year 8 houses were certified as unfit for human habitation, and ordered to be closed by the Sanitary Committee.

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## THE REPORT OF THE SCHOOL MEDICAL OFFICER FOR THE YEAR 1918.

This report is, of course, in the possession of the Ministry of Health, and, as it is very condensed, it is difficult to make selections. Attention may be directed to the section dealing with verminous conditions, in which it is stated

that out of a very large number of children examined 9·1 per cent. of the total were found to be verminous. This figure is much below that given for children admitted to Monsall Hospital suffering from verminous conditions. But it is sufficiently bad. Dr. Ritchie calls attention to the fact that he has no power over other members of the family, and that is even more the dilemma of the Medical Officer of Health. Probably the question will not be adequately tackled until it is made a disability for workers suffering from verminous infection to be admitted to the workshop or to employment until they are certified by the factory surgeon to be free from infection. It is much to be hoped that Dr. Ritchie's confidence in his ability to diminish verminous conditions in school will be justified.

Dr. Ritchie's contention that infectious ophthalmia was spread in the public baths appeared probable, although it is not the only means of spread. The danger was, however, sufficiently pressing for the Medical Officer of Health to join him in urging on the Baths Committee the need for stopping the use of the baths to school children. On the other hand, such an outbreak also emphasises the necessity of not using common towels in any school affected, and it might also be necessary altogether to suspend the use of the school lavatories. The numerical return of all exceptional children in the area in 1918 is of very great interest and importance. Its value would be much enhanced if, in the case of the blind, and also of the deaf and dumb, a further classification of the origin of these conditions were given. The reports on the institutions under the management of the Education Committee are brief, and their great value may not be realised. It is, however, well known that they do admirable work, especially, perhaps, Swinton House and Parkfield. Diphtheria does not show a high incidence on schools, but according to Dr. D'Ewart it remains practically constant. It is to be hoped, however, that the Schick reaction and treatment may prove to be applicable in the protection of school children.

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### MILK SUPPLY.

The Regulations made under the Dairies, Cowsheds, and Milkshops Orders are administered by the Nuisance Sub-Committee. For this purpose two inspectors have been appointed, whose work has been recently controlled directly by Dr. W. A. Young. I consider, however, that the work relating to the production of milk should all pass under the care of the veterinary surgeon, Col. J. W. Brittlebank, and arrangements have been made to that end. At present the two inspectors mentioned inspect dairies, both small and large, and milkshops, and also places where ice-cream is manufactured.

The Regulations relating to Dairies, Cowsheds, and Milkshops did, at the comparatively early period at which they were framed, provide that milkers should have clean hands, and that the udders should be clean at the time of



milking. No prosecutions have taken place for infringement of these conditions, which, however, have been, in the main, fulfilled, except during the war, when milkers were very difficult to get, and were masters of the situation.

Future regulations will, no doubt, be more stringent. But that will not be of much service unless they are carried out.

The inspection of farms within the City has always been in the hands of the Veterinary Surgeon, except during the war, when he was absent on Service. But he cannot be expected to maintain the every-day fulfilment of the regulations, and he will need an inspector for that purpose. The present staff is inadequate, the more so that one is ill and the other is not robust.

The sources of supply are seen from the following figures, furnished by the Manchester and Salford Milk Dealers' Association in the year 1917 for the daily supply :—

30,500	gallons	came in	by rail.
500	„	„	motors or carts.
2,200	„	produced on	Manchester farms.

Of the 30,500 coming by rail, by far the largest part is from Cheshire. The next largest amounts are from Lancashire and Derbyshire. A portion comes from Staffordshire, Yorkshire, and Shropshire. As regards the manner of distribution, there were in 1918 in the City 9 large dairies, 218 small ones, and 2,522 milk shops. The dairies partly distribute milk from carts, partly supply the shops. The milk shops are, for the most part, shops containing a miscellany of other goods, and sell milk to retain their customers. There is usually no place in which utensils can be cleaned other than the sink in sculleries attached to the house (and shop), and no proper storage for them after they have been cleaned. Cleanliness of the milk is partly secured by compelling vendors to keep milk in a clean vessel protected from dust by a board covering it. But the condition of the vessels in which milk is purchased is often worse than that of any vessel in which it has previously been stored. There is but one way in which the resulting impurities in the milk can be rendered comparatively harmless, viz., to boil the milk on arrival at the house, and then to keep it covered over. This procedure is adopted very widely, and would be still more widely adopted if inapplicable ideas about ferments and vitamins did not intervene.

The subject of the milk supply was discussed in my report for 1918. But a statement on the subject of the milk supply was submitted to the Sub-Committee on the Municipalisation of Milk, and is sent herewith. I am strongly of opinion that the bulk of the milk supply should be served in bottles, with a view to secure a greater degree of cleanliness. Bottling, however, should, I think, take place at depôts in the City.

The relative merits of raw, pasteurised, and sterilised milk have been the subject of much discussion. It is asserted that young children derive their vitamins from milk, and that these are destroyed by sterilisation. This is possible, although the researches collected by Dr. Janet Lane Claypon show that animals appear to thrive as well on sterilised as on raw milk. This objection does not apply to pasteurised milk, but it is generally agreed that the results of pasteurising milk by the flash method and then cooling it over a surface exposed to the air are not satisfactory. Professor Delépine's valuable report on the condition of milk in Manchester at various stages of its distribution and use amply proves that it should not be used at present without adequate means being used to render it innocuous as regards infectious conditions and to arrest its deterioration. The Manchester public are educated to boil, or, rather, to scald, all milk just after its arrival in the house. This course is by no means always taken.

Possibly the new processes of pasteurising milk at a temperature of 145° F. for half an hour, now beginning to be introduced in large dairies, coupled with protection of the milk during cooling, and distribution of the pasteurised milk in bottles would meet the immediate difficulty.

But many other improvements are called for on the farms and in transit.

The provision of certified grade A milk is in the right direction, though it is doubtful whether milk of this quality will ever come to meet the general needs. For one thing, adequate supervision is far too costly. We must continue to aim at a complete reform in the methods of production, transport, and distribution.

A report on the action taken in respect of tuberculous milk by Mr. W. A. Young and Lieut.-Col. Brittlebank will be found at page 77 *et seq.*

#### MILK AND CREAM REGULATIONS, 1912 AND 1917.

The following is a summary of the action taken under these regulations in 1919:—

##### *Milk and Cream not sold as Preserved Cream.*

	(a) Number of samples examined for the presence of a preservative	(b) Number in which a preservative was reported to be present
Milk .. ..	1,120	None
Cream .. ..	..	..

Nature of preservative in each case by column (b) and action taken under the Regulations in regard to it.

## 2. Cream sold as Preserved Cream.

(A) Instances in which samples have been submitted for analysis to ascertain if the statements on the labels as to preservatives were correct :—

(1) Correct statements made .. .. .	48
(2) Statements incorrect .. .. .	..
Total .. .. .	<u>48</u>

(B) Determination made of milk fat in cream sold as preserved cream :—

(1) Above 35 per cent. .. .. .	16
(2) Below 35 per cent. .. .. .	..
Total .. .. .	<u>16</u>

(c) Instances where (apart from analysis) the requirements as to labelling or declaration of preserved cream in Article V. (1) and the proviso in Article V. (2) of the Regulations have not been observed.—None.

(D) Particulars of each case in which the Regulations have not been complied with and action taken.—None.

3. *Thickening Substances*.—Any evidence of their addition to cream or to preserved cream. Action taken where found.—None.

4. *Other Observations*, if any.

Answers to Question 2 (C and D) .. .. .	None
„ Questions 3 and 4 .. .. .	None

## MILK (MOTHERS AND CHILDREN) ORDER, 1918.

A very full statement was given at page 71, *et seq.*, of the Annual Report for 1918 on the methods adopted in administering this Order.

A statement of the actual working of the Order will be found inserted on page 181.

## OTHER FOODS.

The Superintendent of the Markets Committee desires that I should make it quite clear that the City Council have delegated the administration of Sections 116-119 of the Public Health Act, 1875, to the Markets Committee, and that this Committee has appointed an adequate staff consisting of a chief meat inspector, who is a veterinary surgeon, 4 assistant veterinary inspectors, and 8 who do not possess a veterinary qualification, to carry out such inspections I gladly do so. At the same time I would point out that the Public Health Act, 1875, by conjoining the Medical Officer of Health and the Inspector of Nuisances, evidently intended that the Inspector of Nuisances concerned should be under the Medical Officer of Health, and should consult with him, and not that this work should be entirely severed from his supervision. Indeed, in many cases, such, for instance, as food poisonings of various characters, chemical

and otherwise, it would be most anomalous if the inspection were undertaken otherwise than by the Medical Officer of Health. For the action taken under Section 117 of the Public Health Act I am obliged to refer to the Annual Report of the Markets Committee. Two public abattoirs are established in the district.

Markets Department,

Town Hall,

Manchester,

14th June, 1920.

Dear Dr. Niven,

In reference to your letter of the 10th instant *re* condemnation of food, I have to inform you that statistical information in regard to this matter is submitted to the Markets Committee periodically, and an Annual Report is prepared covering the financial year ending March 31st. The latter for the year 1919-20 is not yet completed, and I have therefore pleasure in giving you such particulars as are available from the periodical statements covering the 52 weeks ending 19th December, 1919, which is the nearest making-up-date to the end of the year.

The following weights and quantities of food were condemned during this period by the Inspectors of the Department as being unfit for human food :—

Beef .. .. .	1,103,399 lbs.
Mutton .. .. .	36,722 „
Veal .. .. .	10,306 „
Pork .. .. .	22,602 „
Imported Offals .. .. .	24,046 „
	<hr/>
	1,197,075 „
	<hr/>
Fish .. .. .	774,211 lbs.
Shellfish .. .. .	29,871 „
	<hr/>
	804,082 „
	<hr/>
Game .. .. .	992 head
Poultry .. .. .	2,381 „
Fruit .. .. .	156,844½ lbs.
Vegetables .. .. .	227,264 „
<i>Miscellaneous :</i>	
Eggs .. .. .	67,210
Condensed Milk .. .. .	25,076 lbs.
Butter .. .. .	217¾ „
Cheese .. .. .	2,629 „
Health Salts .. .. .	40 „
Lemon Cheese .. .. .	6 „
Coffee and Milk .. .. .	22 „
Margarine .. .. .	19¾ „
Pastry .. .. .	112 „
Yeast .. .. .	5,992



From the information which I have before me, I cannot at the moment give the definite number of carcasses, etc., condemned on account of tuberculosis, but may say that the total number of condemnations of whole carcasses and organs, parts of carcasses or organs, for unsoundness or disease, from all causes, was 10,170—3,903 being on account of tuberculosis.

In any statement which may be furnished to the Ministry of Health, or other Government Department, in regard to the carrying out of the Public Health Acts, so far as they relate to unwholesome food, I feel sure that the Markets Committee would wish that reference should be made to the fact that this work is delegated by the City Council to the Markets Committee, and that a competent staff of Inspectors is engaged in this Department to carry out the duties connected therewith.

For your information, I may say that the meat, etc., inspection staff at present comprises :—

- 1 Chief Inspector (a Veterinary Surgeon),
- 12 Assistant Inspectors, 4 of whom are Veterinary Surgeons.

Yours faithfully,

WM. JNO. WADE,  
*Superintendent.*

Dr. J. NIVEN,  
Medical Officer of Health.

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Town Hall,  
Manchester,  
22nd July, 1920.

Dear Sir,

In reference to exchange of correspondence a short time ago in regard to inspection of meat, etc., I may say that for the twelve months ending 31st March, 1920, 4,087 seizures were made on account of tuberculosis; of this number 800 were whole carcasses of beef, 10 were whole carcasses of pork, 3,179 were part carcasses and organs of beef, and 98 were part carcasses and organs (heads and tongues) of pork.

Yours faithfully,

WM. JNO. WADE,  
*Superintendent.*

Dr. J. Niven,  
Medical Officer of Health.

As regards bakehouses and places where food is sold, see statement prepared by Dr. McClure, pages 87-89, also report under the Factory and Workshops Acts, pages 61, 62, and 66.

#### SANITARY CONDITION OF PREMISES WHERE FOODS ARE MANUFACTURED, PREPARED, STORED, OR EXPOSED FOR SALE.

In all premises with which we have dealt it has been found possible to get the necessary specifications carried out, either under the Ministry of Health in dealing with Army contracts or under Section 91 of the Public Health Act. They include bacon curing establishments and restaurant kitchens.

## SALE OF FOOD AND DRUGS ACTS.

The action taken under these Acts is shown on page 69. On March 31st, 1920, the Public Analyst, Mr. Estcourt, resigned his office, and on April 1st, 1920, Mr. Harri Heap, M.Sc., was appointed Public Analyst. This appointment was confirmed by the Ministry of Health, and has the great advantage that the work is carried out in part of Professor Delépine's laboratory, so that the chemical analysis can be carried out in conjunction with any bacteriological or other scientific work which may be indicated. No matter of special interest arose in 1919.

## MILK AND TUBERCULOSIS.

BY DR. W. A. YOUNG AND LIEUT.-COLONEL BRITTLEBANK.

The work of carrying out the powers conferred by the Manchester General Powers Act, 1899, and defined in the Milk Clauses, has been carried out as in past years.

Until the return of Lieut.-Colonel Brittlebank in October, 1919, the examination of cows was carried out by Mr. J. B. Wolstenholme, F.R.C.V.S., who gave us great assistance in this work.

During the year 238 samples were collected at the railway stations by the Food and Drug Inspectors. In addition they collected 33 samples from carts and dairies within the City.

In addition to the above, 65 samples of mixed milk were collected by the Special Inspectors at the Day Nurseries and Hospitals, and a further 15 samples of mixed milk were taken at the City farms.

The total of 351 samples of mixed milk taken during the year represents the direct examination of the milk from 240 farmers, of whom 20 were proved to be sending tuberculous milk.

Of the 240 farmers—

9 reside in the City and 1 of them sent tuberculous milk	..	11.1%
141 reside in Cheshire and 13 of them sent tuberculous milk..		8.84%
25 reside in Derbyshire and 2 of them sent tuberculous milk..		8.0%
37 reside in Lancashire and 3 of them sent tuberculous milk..		8.1%
22 reside in Staffordshire and 1 of them sent tuberculous milk..		4.55%

From particulars supplied by the 240 farmers, 194 of whom replied to our queries, we find that on these farms there were 3,697 cows, or an average of 19.05 cows per farm.

The usual table showing the percentage of milk samples found tuberculous 1901 onwards is inserted, being completed to the year 1919. :—

TABLE I.

YEAR	Number of farmers' milk tested during the year	Total number found to cause Tuberculosis in the experimental animals	Percentage of farmers sending Tuberculous milk	Percentage of farmers from EACH COUNTY whose milk was found to cause Tuberculosis					
				Cheshire	Derbyshire	Staffordshire	Shropshire	Lancashire	Yorkshire
1901	272	27	9'90	10'46	9'23	8'00	10'00	...	...
1902	345	36	10'40	12'72	8'65	4'01	...	8'31	...
1903	329	45	13'60	14'76	9'58	15'15	40'00	...	...
1904	318	29	9'10	11'17	6'02	...	...	7'14	25'00
1905	565	47	8'30	10'26	6'00	6'38	...	2'98	12'50
1906	542	42	7'70	8'60	6'50	9'30	12'50	4'00	...
1907	562	38	6'76	7'71	4'48	6'94	12'50	3'70	...
1908	289	27	9'34	11'56	6'25	7'70	...	2'94	12'50
1909	535	31	5'79	4'80	7'47	8'57	11'11	3'33	...
1910	468	30	6'41	6'20	8'69	5'55	...	...	...
1911	494	51	10'32	11'11	2'50	12'12	10'00	12'20	50'00
1912	484	54	11'15	12'94	4'00	10'20	33'33	6'00	10'00
1913	486	60	12'51	13'99	11'58	9'26	33'33	5'88	20'00
1914	352	34	9'66	12'39	8'19	...	...	2'77	...
1915	69	9	13'04	16'21	...	...	...	13'63	...
1916	321	38	11'83	11'59	8'80	13'04	...	6'97	...
1917	365	37	10'13	13'54	9'3	4'3	...	11'7	...
1918	288	18	6'25	8'17	5'12	4'16	...	3'57	...
1919	240	20	8'3	8'84	8'0	4'55	...	8'1	...
Total..	7324	673	9'1	—	—	—	—	—	—

On examination of the table it will be seen that 8'3 per cent. of the milk examined in 1919 were proved to contain tubercle bacilli, a figure which is but a little below the average for the whole period since the commencement of operations in 1901.

It would be inadvisable, however, to attempt to formulate any conclusions on the figure above quoted, or, indeed, on any of the figures for the years subsequent to 1914, as the whole of the conditions prevailing were so far from normal.

In following up the infected mixed samples, 31 visits of inspection were made, and 13 cows were definitely proved by bacteriological examination to be suffering from tuberculosis of the udder. These 13 cows were found on 11 farms, that on 9 of the farms no cow suffering from tuberculosis of the udder was found. Of the 13 cows found, 10 were slaughtered under direct supervision, and in all cases the carcasses were found unfit for human consumption, and were condemned.

At the 9 farms at which no source of infection was traced, in most cases it was ascertained that animals had been removed prior to the Inspector's visit. This is of course a common experience, and under existing conditions cannot be avoided.

Special attention is drawn to one case which well illustrates the difficulties met with in clearing up sources of infection.

A mixed sample of milk supplied to a Day Nursery was taken, and on bacteriological examination was found to cause tuberculosis in the experimental animal.

The farm of the dairyman supplying the milk was visited and the cows examined, but no source of infection could be found, and in consequence a control sample of this milk was taken, which was found to be negative.

On further enquiry it was ascertained that additional supplies of milk were obtained by the dairyman from four country farms, all of which were visited and the cattle examined.

At one of the four farms visited a cow suffering from tuberculosis of the udder was found, and subsequently slaughtered. The milk from the remaining three farms was proved to be negative.

During the progress of the enquiry, and subsequent to the discovery of the above-mentioned cow, a further mixed sample was taken at the Day Nursery, and this was again found to cause tuberculosis, in spite of the fact that apparently all sources of supply had been declared free.

It was ascertained, however, that during the interim the milk supplied by another country farmer had been purchased to replace that of the farm to which the original infection had been traced, the supply from which had been suspended.

This new farm was visited and the cows examined, and here no cow suffering from tuberculosis was found, but it was ascertained that shortly prior to the Inspector's visit two cows had been sold, of which one was suspicious to the farmer himself, but nothing further could be done in respect of these two cows, despite every enquiry they could not be traced.

The subsequent control samples from the source of supply to the Day Nursery concerned remain negative,



The following table of samples, submitted in connection with the Manchester Milk Clauses, summarises the work of the year:—

TABLE 11.

SOURCE OF SAMPLES		NUMBER OF SAMPLES				NUMBER OF FARMS		Number of Cows Examined	COWS WITH TUBERCULOUS UDDERS		
		Primary and Subsequent	Control	Total	Positive Results	Inspected	Reinspected		Found	Slaughtered under Supervision of a Vet. Surgeon	Removed from Farm and stated to have been Slaughtered
By Food and Drugs Inspectors	Primary	Railway Stations .. ..	10	238	18	..	..	..	..	..	..
		Carts and City Dairies .. ..	2	33	2	..	..	..	..	..	..
	By Veterinary Surgeon and Special Inspectors	Primary	Nurseries and Hospitals Mixed	1	65	4	..	..	..	..	..
City Farms .. Mixed			..	15	..	..	..	..	..	..	..
Subsequent		Country Farms Individual	..	51	11	20	4	572	11	10	1
	City Farms Individual	3	16	2	2	5	198	2	..	2	
Totals .. .. .		402	16	418	37	22	9	770	13	10	3

## MANCHESTER COWSHEDS.

The number of farms within the City which are occupied as Dairy Farms is 80, whilst the number of cows kept is 1,278. The following summary shows the distribution of cows in the various districts of the City :—

Sanitary District Number	Sanitary District	Cowkeepers	Cows
5	Cheetham .. .. .	2	12
19	Crumpsall .. .. .	4	93
20	Blackley .. .. .	19	294
21	Moston .. .. .	9	155
23	Newton Heath .. .. .	4	34
32	Gorton .. .. .	1	6
16	Hulme .. .. .	1	6
27	West Gorton and Gorton .. .. .	1	24
28	Rusholme and Fallowfield .. .. .	5	100
30	Levenshulme .. .. .	4	93
33	Didsbury .. .. .	17	276
34	Withington and Chorlton-cum-Hardy	13	185
		80	1278

The total number of visits paid by the Inspectors to the City farms during the year was 331 and the total number of inspections of cows amounted to 5,501.

During the year 12 of the farms have been closed, but the actual reduction in the number of animals kept in the City is only 51.

It may be stated at once that the general standard of cleanliness of both cowsheds and cows leaves much to be desired. The Special Inspectors, Inspectors Higginbottom, Lord, and Price, and also Inspector Priestley, did much valuable work in this connection, and it should be specially mentioned that they were only able to devote part of their time to this work, as they were also concerned in many other duties.

## DAIRY UTENSILS AND STERILISATION.

As a result of the energies exerted last year against the use of galvanised milk utensils, it has been found that this type of utensil has been discontinued by many of the farmers, and block tin or tinned ware vessels substituted.

With the exception of one or two farms, there is no special provision made for the adequate sterilisation of milk utensils either by steam or by boiling.

In a few instances gas geysers, which produce warm water, have been installed in the can-washing rooms, but at the majority of the farms warm water from the domestic supply is relied upon.

In spite of the fact that most of the City farmers have small herds, and therefore the expense of erecting a special boiler to produce steam is hardly justifiable, there is no reason why a small sterilising plant on the lines of that designed by Professor Delépine should not be installed on every farm.

In addition to the provision for the proper sterilisation of milk utensils, more attention must be paid by the farmers to the cleansing of the cow sheds, the cows, and the hands, etc., of the milkers.

#### STATEMENT BY LIEUT.-COLONEL BRITTLEBANK.

I returned to my duties on October 1st, 1919, and in the short time of three months am not able to do more than state my impressions of the state of affairs so far as concerns the dairying industry as I find it after a period of five years.

My first impression on visiting some of the country farms was that conditions generally had reverted a good deal, and that so far as cleanliness was concerned we were very much in the position we were in 15 years ago. The majority of the farms I visited I found very much in the same state, the cowsheds were dirty, and the cows were in a general state of filth.

The usual excuse that it was the result of the war was advanced.

No doubt the shortened hours of labour and in some cases the difficulty of obtaining adequate help were responsible for much, but it could not justify the gross conditions found in the majority of cases.

Many of the farms visited were only small, on which probably at no time was more than one farm hand kept in addition to the family help, and I could not escape the impression that the real cause of much I saw was the knowledge that all public bodies were working under difficulties and that inspection and supervision were less probable than formerly.

Indeed, on the larger farms, where the need for help was much greater, the conditions were almost invariably better.

It is true also that owing to the changed conditions and the greatly enhanced price of the commodity produced many farmers have come into dairy farming who had little or nothing to do with it previously, and whilst this may be good so far as mere production of quantity is concerned it by no means ensures the production of milk safe and fit for consumption in its raw state. That it may be for the ultimate good of the consumer is probable, inasmuch as it would naturally ensure milk being sold at a lower price, but owing to the greatly extended area of dairy farming the great work of purifying and cleaning the milk supply is now greater than ever, for it is not at all probable that any serious proportion of these newcomers to dairying will revert to their original branches of farming.

A further impression formed, and to a great extent since confirmed, is that the dairy cattle are generally older than was formerly the case. This is to a large extent only to be expected in view of the economic position. Heifers and young cows generally do not possess the milking capacity of the more mature animals, the lactation period is, generally speaking, probably longer, and the difference in the maintenance ration does not justify the keeping of the younger stock.

There is really nothing economically unsound in the position, given a comparative freedom from tuberculosis, but it has been shown in the past that the incidence of tuberculosis increases with age and work.

So far as the conditions found on the farms situated within the City go, there is little to add. It is quite obvious that under exceedingly difficult conditions every attempt has been made to maintain a high standard, but to some extent what has been said of the conditions existing on the country farms apply here. The Special Inspectors have done much, but there can be no question that whatever form promised legislation may take, only repeated and systematic supervision of the sources will ensure the production of a clean raw milk, for it will be readily seen that mixed as milk is from different sources, even a small percentage of dirty, incompetent producers, will produce gross contamination of the whole.

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### Examination of Milk Supplied to Monsall and Baguley Hospitals, Babies' Hospitals, Child Welfare Centres, and Day Nurseries.

BY DR. W. A. YOUNG.

Samples of milk were taken for chemical analysis, and for bacteriological examination for the presence of tuberculosis, for bacterial count, and for the state of cleanliness generally.

The chemical analysis was made by Mr. R. M. Rowe, of the Sanitary Department, and the bacteriological examinations were carried out at the Public Health Laboratory.

The following samples were taken during the year 1919:—

#### *Chemical Analysis.*

Monsall Hospital .. .. .	24
Baguley Sanatorium .. .. .	17
Child Welfare Centres and Day Nurseries .. .. .	17



*Results.*

In only one instance was the result below the Board of Agriculture standard of 3.0 per cent. fat and 11.5 per cent. non-fatty solids.

The samples showed the milk generally to be of good quality.

*Bacteriological Examinations.*

Monsall and Baguley Hospitals .. .. .	29
Baby Hospitals .. .. .	8
Child Welfare Centres and Day Nurseries .. .. .	27
	<hr/>
	64
	<hr/>

*Results.**(a) PRESENCE OF TUBERCULOSIS.*

In none of the Monsall or Baguley samples was the presence of tuberculosis discovered either by microscopical examination or by inoculation tests.

One sample from a babies' hospital was found to be tuberculous. The milk was traced to the farm and the tuberculous cows were removed. Control samples taken subsequently at the farm proved negative.

Two samples taken at one day nursery and another taken at a babies' hospital gave tuberculous results on examination.

In the first instance two sources of infection were discovered. At one farm a cow suffering from tuberculosis of the udder was found and slaughtered at the other farm the offending animal had been removed prior to inspection of the herd being carried out. In the other instance the supply of milk from the suspected farm, which was outside the City, was discontinued by the wholesale milk dealer.

*(b) BACTERIOLOGICAL EXAMINATIONS, ETC., FOR ARRIVING AT THE STATE OF CLEANLINESS OF THE MILK.*

The results of the examinations of samples taken at Monsall and Baguley Hospitals varied very much, as will be seen from the summary of the results of the best and the worst samples examined.

Date of Sample	Cultivation		Centrifugalization Parts per 100,000	
	Bacteria Growing on C. P. B. @ 20 C. in 3 days	Bacteria Growing on L. L. A. @ 40 C. in 48 hours	Extraneous Products	Cellular Products and Precipitated Matter
June 25th ..	37,000	12,000	20	20
July 24th ..	200,000,000	19,000,000	5	15

The samples taken at child welfare centres, babies' hospitals, and day nurseries also gave varying results.

In all cases when unsatisfactory results were obtained an examination of the retail and wholesale premises and utensils was made, and if they were within the City the farms which were the source of the supply were visited.

The state of cleanliness of the milk supply generally leaves much to be desired.

## DAIRIES, MILKSHOPS, AND ICE CREAM DEPÔTS.

### INSPECTION OF MILKSHOPS.

During 1919 the work of inspection has been carried out by Inspectors Greenup and Heslop and supervised by Dr. Young.

The milk supply of the people of Manchester is in many cases obtained from small shops, which are often heavily stocked with provisions, groceries, smallwares, hardware, drapery, hosiery, sweets, tobacco, mineral waters, fruit, dried onions, and sundry other articles. Many of these shops are unsuitable for the storage and sale of milk, but have been in existence for many years.

The sale of milk should only be permitted from properly adapted premises, where the other articles are truly compatible with the sale of milk, namely, dairy produce, confectionery, small tinned, bottled, or packet goods, and mineral waters.

The policy adopted has been to insist upon cleanliness and the protection of the milk for sale from dust and other injurious matter by special devices in each case, and an endeavour has been made to raise the standard of small milkshops by gradually weeding out the worst of them.

The number of milkshops of the small mixed kind has been considerably reduced in recent years, particularly during the past twelve months. A great number still on the register do not come up to a desirable standard, owing in some cases to the stairs leading to the bedrooms being open to the shop and without doors, while in others the shops communicate with the kitchen or living room, the door between being invariably open.

The following table will show the decrease in the number of registered milk-sellers in the City during the past ten years:—

Number on register in,	1910	..	..	..	..	..	3,471
"	"	1911	..	..	..	..	3,477
"	"	1912	..	..	..	..	3,379
"	"	1913	..	..	..	..	3,342
"	"	1914	..	..	..	..	2,976
"	"	1915	..	..	..	..	2,811
"	"	1916	..	..	..	..	2,726
"	"	1917	..	..	..	..	2,642
"	"	1918	..	..	..	..	2,442
"	"	1919	..	..	..	..	2,299

The following table shows the work done during 1919 :—

Number of milkshops on the register on December 31st, 1919	2,200
„ „ visits by Inspectors	5,150
„ „ applications for registration	300
„ unregistered	160
„ found without indicator over door	32
„ of vessels uncovered	21
„ „ dirty premises	32
„ „ premises in disrepair	1
„ „ premises unfit for registration	„

The increase in the number of defects found on inspection this year may be accounted for by the fact that during the war period some of the requirements were relaxed, but since the close of the war greater vigilance has been exercised in the remedying of defects, there being now more labour available for cleansing, decorating, and repairs.

In the case of milk dealers discontinuing the sale of milk a letter was sent by the Medical Officer of Health, warning them that if they resume the sale of milk they must again apply for registration.

Number of letters sent . . . . . 86

#### SUMMONS ISSUED.

Dirty milkshops . . . . .	8
No indicator over door . . . . .	3
Dirty vessels . . . . .	2
	<hr/>
	13
	<hr/>

#### PROSECUTIONS.

Dirty milkshops . . . . .	1
No indicator over door . . . . .	1
Dirty vessels . . . . .	2
	<hr/>
	4
	<hr/>

#### SUMMONS WITHDRAWN.

Dirty milkshops . . . . .	7
No indicators over door . . . . .	1
(in the above cases the necessary work was completed before the hearings of the case and the summons withdrawn on the payment of costs.)	

#### *Letters sent by Committee.*

(in this case the summons was withdrawn and a letter sent to the milkman by the Committee.)

No indicator over door . . . . .	1
	<hr/>
	9
	<hr/>

In order to improve the conditions at some of the dairies and milkshops, specifications for structural alterations, repairs, etc., were prepared and issued to the occupiers and owners of the following premises during the year 1919 :—

Farms .. .. .	5
Dairies and milkshops .. .. .	9

Work in connection with these specifications is proceeding at 3 dairies, and as labour and building materials become more plentiful better progress will be made.

#### ICE-CREAM.

Ice-cream shops and ice-cream making depôts are under the supervision of the Milkshops' Inspectors, who report that owing to the high prices of sugar, milk, etc., and to the fact that many members of the Italian colony have not yet returned from their Army service, the production of ice-cream has not been so great as in former years.

The following table shows the work done during 1919 :—

Number on the register .. .. .	489
„ of visits by Inspectors .. .. .	1,182

#### DEFECTS FOUND.

Dirty premises (warned to cleanse same) .. ..	20
Boiled mixture uncovered .. .. .	20
Premises in disrepair .. .. .	39
Defective ashbins .. .. .	3
Dirty clothing .. .. .	25

#### SUMMONS ISSUED.

Exposure to contamination .. .. .	3
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SUMMONS WITHDRAWN .. .. .	3
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These summons were withdrawn on a guarantee that strict attention will be paid to the regulations in future and on the payment of the costs.

## BAKEHOUSES AND OTHER PREMISES IN WHICH FOOD IS PREPARED.

#### STATEMENT BY DR. W. ST. C. McCLURE.

The total number of visits made by inspectors to bakehouses during the year was 2,339, and their routine work is referred to on page 60.

Fifteen plans of proposed new bakehouses, involving external structural alterations, were dealt with by the Medical Officer of Health, with the result that one was entirely disapproved, the remainder being accepted upon the



fulfilment of certain requirements relating to the structure, furniture, lighting, ventilation, facilities for personal cleanliness, and the proper provision of cloak-room and feeding accommodation.

In addition to these, visits were made in connection with 25 applications for the use of existing premises as bakehouses, with the result that 4 were considered unsuitable and 21 were approved after certain alterations had been carried out.

The following table relates to bakehouses, restaurant kitchens, and foodshops in which Mr. Irvine was requested by the Medical Officer of Health to prepare specifications of the work required in order to make the premises fit for the purpose.

Specification for bakehouses prepared prior to 1919 in which work was completed during 1919 or still in progress on December 31st, 1919 :—

Number of specifications prepared .. .. .	2
„ in progress .. .. .	1
„ discontinued as a bakehouse .. .. .	1

Specifications for bakehouse prepared in 1919 :—

Number of specifications prepared .. .. .	9
„ completed .. .. .	4
„ discontinued as a bakehouse .. .. .	1
„ in progress .. .. .	4

Specifications for restaurants prepared prior to 1919 in which work was completed during 1919 or was still in progress on December 31st, 1919 :—

Number of specifications prepared .. .. .	6
„ in progress .. .. .	2
„ nothing done .. .. .	3

Specifications for restaurants prepared in 1919 :—

Number of specifications prepared .. .. .	1
„ in progress .. .. .	1

Specifications for other food-preparing premises prepared prior to 1919 in which work was completed during 1919 or was still in progress on December 31st, 1919 :—

Number of specifications prepared .. .. .	8
„ in progress .. .. .	6
„ complete .. .. .	2

Specifications for other food-preparing premises prepared in 1919 :—

Number of specifications prepared .. .. .	4
„ in progress .. .. .	2
„ nothing done .. .. .	1
„ discontinued .. .. .	1

## RETAIL BUSINESS (LICENSING) ORDER, 1918.

In October, 1919, an agreement was arrived at with the Local Representative of the Ministry of Labour that all applications for licenses to open a retail business in which the preparation or sale of food was involved should, before the license was granted, be submitted to the Medical Officer of Health for his observations upon the suitability of the premises for the proposed business. The number and nature of the applications received and the opinion formed after investigation of each case are given in the following table:—

Nature of Business	Number of Applications	Accepted without Prejudice	Premises Unfit
Sale of Milk .. .. .	7	6	1
Making Ice-cream .. .. .	2	1	1
Sweet Boiling .. .. .	5	3	2
Sale of Sweets .. .. .	1	1	—
Mixed Business .. .. .	21	15	6
Making Confectionery .. .. .	19	6	13
Sale of Confectionery .. .. .	15	15	—
Sale of Fish and Poultry .. .. .	4	4	—
Sale of Greengrocery and Fish .. .. .	4	4	—
Grocery .. .. .	18	17	1
Butcher .. .. .	9	9	—
Pork Butcher .. .. .	3	—	3
Preparation of Cooked Meats .. .. .	7	5	2
Sale of Cooked Meats .. .. .	9	8	1
Fish, Chips, and Peas .. .. .	2	1	1
Total .. .. .	126	95	31

## PREVALENCE OF AND CONTROL OVER INFECTIOUS DISEASES GENERALLY.

These diseases, other than tuberculosis, are administered by the Medical Officer of Health and his assistants, with the aid of the Clerical Staff of the General Medical Office and of the District Inspectors of Nuisances, who visit the homes of the patients and collect particulars on forms provided for the use. On these particulars, either without or after a visit by the Medical Staff, action is taken. The medical practitioner is consulted as to the removal of patients to hospital and fixes the period when the patient is free from infection subject to minimal periods. The disinfection required after removal and discharge of the patient is stated by the District Inspectors on a form.

Dr. McClure now has charge of the following diseases:—

Enteric Fever (page 99)	Poliomyelitis (page 106)
Scarlet Fever (page 92)	Encephalitis-Lethargica (page 106)
Erysipelas (page 91)	Small-pox (page 157)
Diphtheria (page 95)	Anthrax (page 161)
Cerebro-Spinal Fever (page 106)	

and accounts will be given by him dealing with the special points mentioned in the circular. Thus "return cases" are dealt with on page 94, carrier cases on pages 98, 102, and 106, the provision made for distribution of diphtheria antitoxin on page 98, contacts on page 157 *et seq.*

Dr. W. A. Young takes charge of the following:—

Pneumonia (page 103)	Trench Fever (page 112)
Malaria (page 109)	Venereal Diseases (page 142 <i>et seq.</i> )
Dysentery (page 110)	Influenza and Influenzal Pneumonia (page 103)
Rabies (page 162)	

Since the return of his Assistants from Active Service the Medical Officer of Health has given personal attention to measles (page 188) and whooping cough (page 191), and purposes to direct his attention to pneumonia (page 178).

Measles and whooping cough, however, come properly under Dr. Douglass Drummond, as do puerperal fever (page 168), ophthalmia neonatorum (page 183), and certain septic conditions, viz., pemphigus neonatorum and associated affections, also verminous conditions.

# NOTIFIABLE INFECTIOUS DISEASES OTHER THAN MEASLES, WHOOPING COUGH, AND TUBERCULOSIS.

Diseases included in the Infectious Disease (Notification) Acts, 1889 and 1899, are : Smallpox, Scarlet Fever, Diphtheria, Typhus Fever, Enteric or Typhoid Fever, Malaria, Continned Fever, Puerperal Fever, Erysipelas, and Asiatic Cholera, to have been added Ophthalmia Neonatorum, Cerebro-Spinal Fever, Poliomyelitis, Encephalitis and Encephalitis-Lethargica, Malaria, Dysentery, Trench Fever, Acute Pneumonia, and Acute Influenzal Pneumonia. The following cases were notified, and the numbers are compared with the average of the previous ten years :—

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	Mean	1919
Smallpox .. .. .	..	..	..	I	I	..	..	..	..	..	..	14
Scarlet Fever .. ..	3,700	2,324	1,939	1,840	3,715	4,712	2,922	1,185	829	779	2,395	1,758
Diphtheria .. .. .	598	498	472	474	650	746	548	614	581	518	570	471
Typhus Fever .. ..	20	2	10	..	..	I	..	..	I	..	3	..
Enteric Fever .. ..	369	358	256	242	292	156	174	78	86	68	208	90
Trench Fever .. ..	..	..	..	..	..	..	..	..	..	..	..	..
Malaria .. .. .	84	131	130	124	124	104	94	99	54	66	101	159
Erysipelas .. .. .	371	407	442	396	412	551	492	320	228	243	386	392
Ophthalmia Neonatorum ..	..	246	443	503	331	414	414	379	315	307	372	344
Cerebro-Spinal Fever ..	..	..	..	6	I	2	15	7	7	5	6	11
Poliomyelitis .. .. .	..	..	..	55	6	12	8	9	14	10	16	8
Encephalitis .. .. .	..	..	..	..	..	..	..	..	..	..	..	4
Encephalitis-Lethargica ..	..	..	..	..	..	..	..	..	..	..	..	10
Asiatic Cholera .. .. .	..	..	..	..	..	..	..	..	..	..	..	312
Dysentery .. .. .	..	..	..	..	..	..	..	..	..	..	..	6
Trench Fever .. .. .	..	..	..	..	..	..	..	..	..	..	..	I
Acute Pneumonia .. .. .	..	..	..	..	..	..	..	..	..	..	..	410
Acute Influenzal Pneumonia ..	..	..	..	..	..	..	..	..	..	..	..	816
	5,142	3,966	3,692	3,641	5,532	6,698	4,667	2,691	2,115	1,996	4,057	4,806



The deaths from the more common diseases are shown in the following fig

Years	Measles	Scarlet Fever	Diphtheria	Enteric Fever	Influenza	Whooping Cough	Diarrhoea
1909-18 average	314	74	91	41	309	214	441
1919	104	26	41	19	1127	40	170

These figures tend to indicate that the great fall in the numbers notified is, in the main, real, and is not all produced by temporary causes.

### SMALLPOX.

SEE DR. W. ST. C. MCCLURE'S STATEMENT, page 157.†

### SCARLET FEVER.

The following figures show the course of the disease in quarters :—

TABLE I.—SCARLET FEVER.—ATTACKS IN QUARTERS ACCORDING TO DATE OF RASH.

Year	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
1917 ..	174	140	164	351	829
1918 ..	263	187	153	176	779
1919 ..	132	271	437	918	1758

This table shows that the periodic wave is now ascending.

During 1919 the rate of attack from Scarlet Fever was somewhat lower than in the towns used for comparison, and was highest in South Manchester.

TABLE 2.—SCARLET FEVER ATTACKS, 1919.—RATES PER 1,000 LIVING, AS COMPARED WITH THE MEAN FOR FIVE YEARS.

	1914	1915	1916	1917	1918	Mean	1919
Twelve Towns * .....	4.86	3.49	1.81	†1.69	1.46	2.66	2.70
City of Manchester ...	6.89	3.91	1.57	†1.26	1.01	2.93	2.22
Manchester Township .....	5.05	3.09	1.90	0.90	0.99	2.39	1.65
North Manchester .....	7.46	4.47	2.01	1.21	1.04	3.24	1.92
South Manchester .....	7.13	3.84	1.27	1.07	1.00	2.86	2.50

\* These are Blackburn, Bolton, Bradford, Burnley, Halifax, Hull, Leeds, Liverpool, Oldham, Preston, Salford, and Sheffield.

† Based on Civil Populations.

‡ This report deals only with the current administrative steps taken, and does not go into details with regard to all the measures taken. I desire, however, to record that a large number of handbills were circulated giving advice to the public as to precautions to be taken. These handbills were substantially the same as those circulated in 1894.

BLE 3.—1919—SCARLET FEVER ATTACKS IN DISTRICTS, WITH ATTACK RATE, CASE FATALITY PER CENT., AND REMOVALS TO HOSPITAL PER CENT.

DISTRICTS		ATTACKS	ATTACK RATE PER 1,000 LIVING	† CASE FATALITY PER CENT.	REMOVALS TO HOSPITAL PER CENT.
North Manchester	Manchester Township { Ancoats .....	69	1·81	5·8	81·1
	Central .....	33	1·95		84·8
	St. George's .....	66	1·41	7·6	86·3
	Cheetham .....	86	1·79	...	67·5
	Crumpsall .....	19	1·65	...	31·6
	Blackley .....	45	2·54	8·9	77·8
	Harpurhey .....	33	1·77	3·0	60·6
	Moston .....	71	2·14	...	57·7
	Newton Heath ..	98	2·11	1·0	75·5
	Bradford .....	31	1·16	3·2	80·6
	Beswick .....	30	2·38	...	90·0
	Clayton .....	34	1·97	...	70·6
	Ardwick .....	103	2·60	...	77·7
	Openshaw .....	82	2·37	2·4	81·8
South Manchester	Gorton (West) ...	95	3·53	...	79·0
	Rusholme & Kirk.	126	2·42	0·8	64·4
	Chorlton-on-Med.	105	1·97	3·8	79·1
	Hulme .....	192	3·11	1·0	80·7
	Moss Side .....	67	1·67	...	49·2
	Withington .....	168	2·57	0·6	42·9
	Gorton .....	123	2·24	0·8	53·7
	Levenshulme .....	82	2·97	1·2	51·2
City of Manchester ...		1,758	2·22	1·6	68·5

† Corrected; the fatal cases are those actually occurring amongst the cases notified.

It has not been possible to remove to Hospital more than 68·5 per cent. of the cases.

The case fatality is lower than the mean for the past ten years.

TABLE 4.

Year .....	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	Mean	1919
Case fatality per cent.	4·1	3·4	1·8	2·8	2·5	3·1	2·7	3·0	1·8	2·8	2·8	2·2

Table 5 gives a comparison of the death-rates from Scarlet Fever in different countries, and shows that the death-rate closely approximates to that of the foreign country, though, probably, somewhat exceeding it, but is lower than that affecting the 96 great towns.

TABLE 5.—SCARLET FEVER MORTALITY, 1919.—RATE PER 1,000 LIVING  
COMPARED WITH MEAN OF FIVE YEARS.

	1914	1915	1916	1917	1918	Mean	1919
England and Wales.....	0·08	0·06	0·04	0·02	0·03	<b>0·05</b>	0·03
96 Great Towns .....	0·09	0·07	0·04	0·03	0·04	<b>0·05</b>	0·03
London.....	0·07	0·07	0·03	0·02	0·03	<b>0·04</b>	0·03
<b>Manchester City</b> .....	0·22	0·11	0·05	0·02	0·03	<b>0·09</b>	0·03
Manchester Township .....	0·17	0·07	0·13	0·03	0·05	<b>0·09</b>	0·03
North Manchester .....	0·22	0·17	0·05	0·04	0·02	<b>0·10</b>	0·03
South Manchester .....	0·23	0·09	0·02	0·01	0·03	<b>0·08</b>	0·03
148 Smaller Towns .....	0·07	0·07	0·04	0·02	0·02	<b>0·04</b>	0·03

It will be observed that the death-rate in the Manchester Township is higher than that for the two other main divisions of the City.

Scarlet fever was generally prevalent throughout the City during the year, the greatest incidence falling upon the districts of West Gorton, Hulme, and Levenshulme.

*Sources of Infection.*—No serious outbreak was traced to any one common source of infection. Excluding "return" cases, 191 were secondary infections amongst members of households in which a previous case had occurred. Overlooked cases continue to play their part. Every notified case is, in the first place, investigated by the district inspector, who enquires into the health of other members of the family, and when a history of suspicious illness is obtained a special certificate as to the nature of the illness is requested from the family medical attendant. In this manner 35 overlooked cases were discovered, but not before they had been responsible for the infection of others.

*"Return" Cases.*—Out of 1,005 discharges from Monsall Hospital, 22 gave rise to 23 secondary cases, a return case rate of 2·2 per cent. compared with 2·0 per cent. in 1918. Amongst the return cases there was 1 death. The interval between the return home of the patient and the onset of the "return" case varied between 5 and 53 days, the average being about 15. Four other cases narrowly escaped being classified as "return" cases, the rash of scarlet fever appearing less than 4 days before the home-coming patient was discharged from hospital. Of the 22 returning patients, 5 developed nasal discharge after their arrival home, the remainder being clear of any physical signs of infectivity. Enquiries showed that, on the whole, reasonable care was taken by the parents, to prevent infection from a returning case, though separate sleeping accommodation was not always practicable. During the period under review two "recovery" cases occurred after release of patients who had been nursed at home.

# DIPHTHERIA AND MEMBRANOUS CROUP.

The usual tables for this disease are given below.

The following table shows the number of cases notified each year for the ten years :—

1910	1911	1912	1913	1914	1915	1916	1917	1918	1919
498	472	474	650	746	548	614	581	518	471

TABLE I.

DIPHTHERIA, MEMBRANOUS CROUP, 1919.—ATTACKS IN WEEKS, ACCORDING TO DATE OF ONSET.

FIRST QUARTER		SECOND QUARTER		THIRD QUARTER		FOURTH QUARTER	
Jan. 4	7	April 5	5	July 5	11	Oct. 4	8
" 11	4	" 12	6	" 12	6	" 11	14
" 18	9	" 19	4	" 19	13	" 18	14
" 25	7	" 26	3	" 26	15	" 25	11
Feb. 1	4	May 3	6	Aug. 2	12	Nov. 1	12
" 8	8	" 10	7	" 9	6	" 8	14
" 15	5	" 17	8	" 16	4	" 15	8
" 22	3	" 24	10	" 23	6	" 22	6
March 1	1	" 31	8	" 30	5	" 29	12
" 8	...	June 7	7	Sept. 6	14	Dec. 6	15
" 15	2	" 14	8	" 13	22	" 13	11
" 22	1	" 21	11	" 20	17	" 20	11
" 29	10	" 28	7	" 27	10	" 27	17
Total...	61	Total...	90	Total...	141	Total...	179

City total, 471.

TABLE II.

SHOWS THE ATTACK RATE PER 1,000 LIVING FOR THE YEAR 1919, COMPARED WITH THE MEAN OF FIVE YEARS—DIPHTHERIA AND MEMBRANOUS CROUP.

	1914	1915	1916	1917	1918	Mean	1919
Twelve Notification Towns ...	1.47	1.39	1.13	1.09	1.03	1.22	1.62
City of Manchester .....	1.09	0.73	0.81	0.88	0.67	0.84	0.59
Manchester Township.....	0.83	0.85	0.95	0.78	0.88	0.86	0.77
North Manchester .....	1.46	1.00	0.97	0.99	0.81	1.05	0.72
South Manchester .....	0.96	0.58	0.70	0.64	0.55	0.69	0.49

\* These are in Lancashire and Yorkshire.

† Based on the Civil Population. Otherwise the Rates are here based on the Census figures.



The following table shows that the number of attacks is highest at a 3 to 5 :—

TABLE III.

DIPHThERIA, MEMB. CROUP.—NUMBER OF ATTACKS, OF DEATHS, AND CASE FATALITY AT DIFFERENT AGES, FOR THE TWENTY-EIGHT YEARS 1891-1918, AND FOR 1919.

AGES	1891-1918			1919		
	ATTACKS	DEATHS	CASE FATALITY*	ATTACKS	DEATHS	CASE FATALITY
Under one year ...	347	221	63·7	5	4	80·0
1 to 2 years ...	1024	514	50·2	8	1	12·5
2 to 3 " ...	1238	443	35·8	38	9	23·7
3 to 4 " ...	1494	436	29·2	32	2	6·2
4 to 5 " ...	1532	379	24·7	46	5	10·9
5 to 6 " ...	1382	306	22·1	60	5	8·3
6 to 7 " ...	1029	169	16·4	43	5	11·6
7 to 8 " ...	772	112	14·5	35	1	2·9
8 to 9 " ...	643	90	14·0	23	2	8·7
9 to 10 " ...	467	53	11·3	24	4	16·7
10 to 15 " ...	1324	78	5·9	72	2	2·8
15 to 20 " ...	635	31	4·9	30	1	3·3
20 to 25 " ...	498	15	3·0	21	1	4·8
25 to 35 " ...	672	20	3·0	15	1	6·7
35 to 45 " ...	273	6	2·2	15	...	...
45 and over ...	127	10	7·9	4	...	...
All ages .....	13457	2883	21·4	471	43	9·1

\* The percentages in this column are the actual proportions of fatal cases to the attacks at those ages.

The comparison of the case fatality of 1919 with that for the 28 previous years is matter for great satisfaction, especially having regard to the diminished incidence of the disease.

The case fatality at all ages since 1901 has been as follows :—

1901	1902	1903	1904	1905	1906	1907	1908	1909	1910	1911
28·8	29·4	21·9	20·7	22·4	21·1	20·4	21·8	17·9	19·9	16·
1912	1913	1914	1915	1916	1917	1918	1919	—	—	—
20·0	14·9	14·3	18·8	11·7	10·8	10·8	9·1	...	...	...

From the following table we see that the apparent incidence of the disease was greatest in the districts of Newton Heath, St. George's, West Gorton, and Ardwick. The percentage of removals is 72·2, a high figure, and one which is satisfactory. The disease is one which yields good results to isolation and care in removing infection.

TABLE IV.

DIPHTHERIA AND MEMBRANOUS CROUP, 1919.—ATTACKS IN DISTRICTS, WITH ATTACK RATE, CASE FATALITY PER CENT., AND REMOVALS TO HOSPITAL PER CENT.

DISTRICT'S		ATTACKS	Deaths	ATTACK RATE PER 1000 LIVING	† CASE FATALITY PER CENT.	REMOVALS TO HOSPITAL PER CENT.
Man- chester Township	{ Ancoats .....	24	5	0·63	20·8	100·0
	{ Central .....	9	...	0·53	...	77·8
	{ St. George's .....	45	4	0·96	8·9	84·4
North Man- chester	{ Cheetham .....	51	1	1·06	2·0	76·5
	{ Crumpsall .....	3	...	0·26	...	100·0
	{ Blackley .....	11	1	0·62	9·1	72·7
	{ Harpurhey .....	14	...	0·75	...	78·5
	{ Moston .....	21	1	0·63	4·8	61·9
	{ Newton Heath...	46	7	0·99	15·2	78·3
	{ Bradford .....	4	...	0·15	...	100·0
	{ Beswick .....	6	...	0·48	...	100·0
	{ Clayton ..	12	...	0·69	...	75·0
	{ Ardwick .....	32	7	0·81	21·9	65·6
South Man- chester	{ Openshaw .....	6	...	0·17	...	66·7
	{ Gorton (West) ...	24	2	0·89	8·3	83·3
	{ Rusholme & Kirk.	22	...	0·42	...	68·2
	{ Chorlton-on-Med	19	5	0·36	26·3	78·9
	{ Hulme .....	39	3	0·63	7·7	69·2
	{ Moss Side .....	15	3	0·37	20·0	46·7
	{ Withington .....	17	1	0·26	5·9	47·1
	{ Gorton .....	36	3	0·66	8·3	50·0
	{ Levenshulme ...	15	...	0·54	...	46·7
City of Manchester...		471	43	0·59	9·1	72·2

† Corrected: the fatal cases are those actually occurring amongst the cases notified.

The figures given below show that in 1919 Manchester had a death-rate in Diphtheria much smaller than that which held for England generally

TABLE V.

DIPHTHERIA, MEMB. CROUP MORTALITY, 1919.—RATE PER 1000 LIVING COMPARED WITH MEAN OF FIVE YEARS.

	1914	1915	1916	1917	1918	Mean	1919
England and Wales .....	0·15	0·15	0·14	0·13	0·14	0·14	0·13
Great Towns .....	0·16	0·16	0·15	0·13	0·15	0·15	0·14
London .....	0·16	0·16	0·14	0·14	0·17	0·15	0·18
Manchester City .....	0·15	0·14	0·09	0·08	0·08	0·11	0·05
Manchester Township .....	0·20	0·25	0·13	0·07	0·12	0·15	0·10
North Manchester.....	0·22	0·20	0·10	0·11	0·06	0·14	0·04
South Manchester.....	0·10	0·09	0·07	0·07	0·07	0·08	0·05
8 Smaller Towns .....	0·16	0·15	0·15	0·13	0·14	0·15	0·12

## EXAMINATION OF "CONTACTS."

So far as was practicable swabs were taken from the throats of members of each family in which there had occurred a case of Diphtheria.

In all, 1,252 persons belonging to 282 families were swabbed, and 48, or 3·9 per cent., were found to be harbouring the Diphtheria bacillus.

With a few exceptions these were admitted to Monsall Hospital, and kept under observation until three successive swabs proved negative.

The age and sex of 1,216 "contacts" in which the original case was positive are given hereunder, together with the result of the bacteriological examination.

The remaining 36 were in contact with a negative case of Diphtheria. Nevertheless three persons were found to be "harbourers," and they were isolated, and received appropriate treatment until free.

TABLE SHOWING AGE AND SEX OF 1,216 "CONTACTS," WITH POSITIVE CASES OF DIPHTHERIA AND THE RESULT OF BACTERIOLOGICAL EXAMINATION OF SWABS :—

Ages in Years	Number Examined		Number, Positive		Per Centum	
	Male	Female	Male	Female	Male	Female
0—5	65	64	1	4	1·5	6·2
5—10	77	88	5	6	6·5	6·8
10—15	70	76	5	4	7·1	5·3
15—25	87	110	4	5	4·6	4·5
25 and over	257	322	5	6	1·9	1·9
All ages	556	660	20	25	3·6	3·8
	1,216		45		3·7	

## SUPPLY OF ANTITOXIN.

Diphtheria antitoxin is supplied free to all medical practitioners in the County and may be obtained by them at any time during the day or night either from the Public Health Office or from the district Police Stations.

## ENTERIC FEVER.

PREPARED FOR THE MEDICAL OFFICER OF HEALTH  
BY DR. W. ST. C. McCLURE

The number of cases of Enteric Fever occurring during 1919 was 90. Of those affected, 30 were males over 15 years of age, 38 females over 15, and 22 were children aged 0-14 years.

Table I. shows the attack and death-rates compared with those of England and Wales.

TABLE I.

INCIDENCE OF AND DEATH-RATE FROM ENTERIC FEVER IN MANCHESTER.  
*Number of notified cases, deaths, and death-rates per 1,000 living from Enteric Fever in each of eighteen successive years.*

YEAR	1902	1903	1904	1905	1906	1907	1908	1909	1910
No. of cases notified	378	387	325	345	384	265	393	369	358
No. of deaths. ....	66	93	66	55	83	37	75	71	62
Death - rate — Man- chester .....	0'12	0'17	0'12	0'09	0'14	0'06	0'11	0'13	0'09
Death - rate — Eng- land and Wales...	0'13	0'10	0'09	0'09	0'09	0'07	0'07	0'06	0'05

YEAR	1911	1912	1913	1914	1915	1916	1917	1918	1919
No. of cases notified and accepted . .	256	242	292	156	174	78	86	68	90
No. of deaths . . .	46	43	47	34	46	22	10	10	19
Death-rate — Man- chester . . . . .	0'07	0'06	0'06	0'05	0'06	0'03	0'01	0'01	0'02
Death-rate — Eng- land and Wales..	0'07	0'04	0'04	0'05	0'04	0'03	0'03	0'03	0'01

Other tables which it has been customary to print have been compiled and recorded in the Office.



*Distribution.*

Of the deaths, there were 3 in Cheetham and 2 each in Ardwick, West Gorton, and Hulme. The remainder were distributed over eight other districts.

Tabulation of the attacks according to the dates of onset shows that in the first quarter there were 35 cases ; second quarter, 25 ; third quarter, 15 ; fourth quarter, 15. The usual autumnal rise was again absent.

Table II. shows at what ages Enteric Fever appears to be most prevalent, and also at what ages it is most fatal. It prevails from early infancy, is least fatal at school ages, and continues to become more fatal with advancing years. It appears to reach its acme of prevalence at the ages 15-25, and it is possible that the decline in numbers after this age is due to the number of those who have undergone protection.

(Table omitted.)

TABLE III.

ENTERIC FEVER ATTACKS IN WEEKS REPORTED IN 1919 ACCORDING TO  
DATE OF ONSET.

First Quarter		Second Quarter		Third Quarter		Fourth Quarter	
Jan .. 4	3	April .. 5	1	July .. 5	1	Oct. .. 4	1
, .. 11	5	, .. 12	..	, .. 12	..	, .. 11	1
, .. 18	4	, .. 19	3	, .. 19	1	, .. 18	..
, .. 25	10	, .. 26	4	, .. 26	1	, .. 25	2
Feb. .. 1	3	May .. 3	4	Aug. .. 2	1	Nov. .. 1	1
, .. 8	3	, .. 10	..	, .. 9	..	, .. 8	1
, .. 15	1	, .. 17	1	, .. 16	3	, .. 15	..
, .. 22	..	, .. 24	4	, .. 23	..	, .. 22	1
March .. 1	1	, .. 31	4	, .. 30	2	, .. 29	3
, .. 8	2	June .. 7	..	Sept. .. 6	2	Dec. .. 6	1
, .. 15	1	, .. 14	..	, .. 13	2	, .. 13	4
, .. 22	1	, .. 21	1	, .. 20	2	, .. 20	..
, .. 29	..	, .. 28	3	, .. 27	..	, .. 27	..
						Jan. .. 3	1
Total..	34	Total ..	25	Total ..	15	Total ..	16

TOTAL—90

ENTERIC FEVER.—NUMBER OF ATTACKS, OF DEATHS, AND CASE FATALITY PER CENT. AT DIFFERENT AGES, FOR THE TWENTY-EIGHT YEARS 1891-1918, AND FOR 1919.

Ages	1891-1918			1919		
	Attacks	Deaths	Case Fatality Per cent.	Attacks	Deaths	Case Fatality Per cent.
Under one year . . . .	17	7	41·2	..	..	..
1 to 2 years . . . .	53	8	15·1	..	..	..
2 „ 3 „ . . . .	111	16	14·4	1	..	..
3 „ 4 „ . . . .	165	22	13·3	1	..	..
4 „ 5 „ . . . .	217	23	10·6	2	..	..
5 „ 6 „ . . . .	251	27	10·8	2	..	..
6 „ 7 „ . . . .	247	25	10·1	2	..	..
7 „ 8 „ . . . .	237	20	8·4	..	..	..
8 „ 9 „ . . . .	248	21	8·5	2	..	..
9 „ 10 „ . . . .	242	25	10·3	2	..	..
10 „ 15 „ . . . .	1420	156	11·0	10	2	20·0
15 „ 20 „ . . . .	1554	281	18·1	18	4	22·2
20 „ 25 „ . . . .	1521	302	19·9	8	1	12·5
25 „ 35 „ . . . .	2199	514	23·4	19	3	15·8
35 „ 45 „ . . . .	1069	317	29·7	14	5	35·7
45 „ 55 „ . . . .	724	252	34·8	8	1	12·5
55 „ 65 „ . . . .				1	1	100·0
65 and over . . . .				..	..	..
	10275	2016	19·6	90	17	18·9

*Sources of Infection.*

There was no serious outbreak due to any one common source of infection. Of the 90 cases notified, 5 were infected outside the City, 21 were due to direct infection from a previous case, 4 were possibly due to the consumption of contaminated mussels, and in the remainder the source of infection was untraced,

though it is probable that 15 of them received infection from an overlooked case in the same household. The 19 cases in the district of Rusholme include 9 which occurred at one institution into which infection was first carried by a child suffering from an illness which for some time before admission had remained unrecognised. Cases continued to occur after removal of the child to isolation hospital, in consequence of which the blood of all those engaged in the preparation or handling of food was examined, with the result that two persons were found whose blood gave a positive Widal reaction. No history of illness could be obtained in these two cases, and bacteriological examinations proved negative. Nevertheless, after their removal to Monsall Hospital, where they were kept under observation, no further cases occurred at the Institution.

Contaminated shellfish appear to be a decreasing factor in the cause of spread of Typhoid. In 1918 8 cases and in 1919 4 only were, so far as our investigation showed, connected with the consumption of mussels.

The association of cases of Typhoid with the existence of privy middens and pail closets is generally recognised. In Manchester the coefficient of correlation worked out over 29 years gives a figure of  $0.846 \pm 0.036$ , which indicates a causal rather than an accidental connection. Since 1892 76,580 middens and pails have been demolished in the City, and there are now about 1,000 remaining to be dealt with. The danger of spread of infection through this medium has therefore nearly ceased.

Overlooked and unrecognised cases continue to account in some part for the continued prevalence of the disease, and in this connection it is of interest to note the results obtained from the examination of contacts. One hundred and eighty family contacts were examined, and the blood of 31 gave a positive Widal reaction. Eight of these were found to be suffering from an attack of Typhoid, 5 gave a history of recent illness, but from the others no such history could be obtained. All except 5, who were soldiers, and had been recently inoculated, were removed to Monsall Hospital for observation and for bacteriological examination. No healthy carriers were found.

Table showing age and sex of 180 family contacts whose blood was examined for the Widal reaction, and the results :—

	0-5 years		5-15 years		15-25 years		25 years and over		Total	
	M.	F.	M.	F.	M.	F.	M.	F.	M.	F.
Positive .. ..	1	1	1	2	8	3	7	8	17	14
Negative .. ..	9	8	21	25	9	23	26	28	65	84

## NOTIFIED CASES OF PNEUMONIA.

The following analysis by Miss Seed of the notifications of Pneumonia made under the Order issued by the Ministry of Health in the beginning of 1919 deals only with the numbers notified, and does not attempt to draw any conclusions from the data collected on the investigation sheets. Nor would it be possible at present to do so with any advantage. Probably it will take some years before a progressive scheme of investigation is devised. The data given are accompanied by tables and charts. But these are not reproduced.

The extent to which notification has been carried out is not satisfactory, but will no doubt be brought into line with the fatality.

The subject is, of course, a very important one, and it is one to which the Medical Officer of Health has in the past given special consideration.

But it is also a very difficult one, and will demand much inquiry and consideration.

### PNEUMONIA REPORT FOR 1919 BY MISS M. G. SEED, SUPERINTENDENT OF HEALTH VISITORS.

During the year 1919 the total number of deaths from Pneumonia was 977 distributed as follows:—

Lobar (Croupous) Pneumonia	..	..	..	..	..	287	deaths
Lobular (Broncho)	„	..	..	..	..	564	„
Pneumonia (unclassified)	..	..	..	..	..	126	„
						<u>*977</u>	Total

\* The deaths occurring from Influenzal Pneumonia are included in the classification of "Deaths from Influenza."

On March 1st, 1919, all cases of Primary Pneumonia and of Influenzal Pneumonia became notifiable to the Local Authorities, and 1,226 notifications were received. 410 of these were in respect of Primary Pneumonia and 816 of Influenzal Pneumonia. 338 Primary Pneumonia cases and 612 Influenzal Pneumonia cases were visited. The remainder, being those occurring in various institutions in the City, were not investigated.

Visited by	Lobar Pneumonia	Lobular Pneumonia	Influenzal Pneumonia	Total
Sanitary Inspectors .. .. .	204	16	278	498
Health Visitors .. .. .	90	28	334	452

As will be seen from the above table, the visiting of Pneumonia cases was carried out by both the Health Visitors and the Sanitary Inspectors, the former



undertaking all cases of Influenzal Pneumonia occurring in the districts worked by them, and all cases of Primary Pneumonia where the patient was under five years of age. In October, 1919, the whole of the Pneumonia work was transferred to the Health Visitors Department.

The attacks of Lobar and Lobular Pneumonia investigated have been more or less uniform throughout the year, but in those of Influenzal Pneumonia there was a considerable jump from one case in January to 227 in February and 27 in March, after which the numbers fell suddenly in April to 42. For the remainder of the year the numbers varied from 3 to 18 cases per month.

With reference to the distribution as regards sex and age, there would appear to be a greater number of sufferers amongst the male population in *Lobar Pneumonia*, and these increase very much above those of the female population affected in the ages ranging from 21-50 years. The highest number of attacks amongst the males occurs between the years of 41 and 50, amongst the females between the years 21-30.

In *Lobular Pneumonia* there is a preponderance of females over males particularly in the ages ranging from one to five years, at which period the highest number of attacks appears to occur in both sexes.

In *Influenzal Pneumonia*, however, the case is different. There is a rise in the number of cases during the years one to five, and at this period the number of males affected is in excess of the females. A decrease in the number of cases in both sexes during the years 6-15 is followed by a marked increase reaching its apex in the years 21-30, and at this period there is a considerable excess of females over males. At the ages of 41-50 years the figures for males are again in excess, but they sink slightly below those in respect of females from 51 to 70 years. By far the greatest number of attacks have occurred in four-roomed houses, though, taking Influenzal Pneumonia alone, the number of attacks in six-roomed houses is almost as high. With very few exceptions the houses in question have been described as "clean." Possibly this statement needs some qualification.

Nineteen cases of *Lobar Pneumonia* were removed to hospital. In 231\* cases the attack was reported to be the first, 60 having previously had it, 205 cases recovered, and 89 died. Four of these deaths were cases which had been removed to hospital. In 69 instances previous attacks had occurred in other members of the family at various dates, and 8 cases had histories of Tuberculosis. In 14 cases there was more than one member of the household suffering from Pneumonia at the time of investigation.

\* No information in three further cases.

Assistance in the form of milk and coal was allowed in 16 necessitous cases where the patient was under five years of age.

The greatest number of attacks appears to have occurred amongst school children, the number reported being 63. Following this, we get those engaged in domestic occupations, 42 being affected. Children under school age and those engaged in "Trades" come next, both numbering 35 cases, and the next highest are labourers, 28 in all.

Only 3 cases of *Lobular Pneumonia* were removed to hospital, and of these 2 recovered. In 35 cases the attack was a primary one, in 8 the attack was a subsequent one, 13 cases died and 31 recovered. In 7 cases previous attacks in the family at various dates were reported, and in 2 cases there were other members of the household suffering from Broncho-Pneumonia at the time of investigation. Assistance was given as in Lobar Pneumonia in 5 cases.

21 of the attacks occurred amongst children under school age and 11 amongst children attending school.

Of the 612 "*Influenzal Pneumonia*" cases 54 were removed to hospital, and of these 34 recovered and 20 died. With the exception of 58 cases all attacks were primary. 394 of the total cases recovered and 214 died.\* In 98 cases there had been at some time or other previous attacks of Pneumonia in the family. In several cases other attacks of Influenza only were reported as at present existing, and in 65 cases other members of the family were suffering from Influenzal Pneumonia at the moment. There was a history of Tuberculosis in 3 cases.

Assistance in the form of coal, milk, whisky, and nursing was granted in 38 cases.

Quite the highest number of cases, 165, appears amongst those engaged in domestic work. Children under school age and those attending school are the next highest, being respectively 79 and 78. "Trades" = 69 cases, engineering trades = 41, labourers = 29, and clerical workers = 28, are the next most numerous classes.

The districts of Ancoats, Newton Heath, Hulme, and Gorton appear to have been the most affected as regards *Lobar Pneumonia*. Ancoats, Openshaw, and Gorton are slightly in excess of the other districts with respect to *Lobular Pneumonia*, and the areas most affected in the *Influenzal epidemic* were St. George's, Newton Heath, Ardwick, Hulme, Gorton, and Levenshulme.

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\* No information in four further cases.

## CEREBRO-SPINAL FEVER.

## ENCEPHALITIS LETHARGICA.

## POLIOMYELITIS. POLIO-ENCEPHALITIS.

REPORT BY W. ST. C. McCLURE.

### CEREBRO-SPINAL FEVER.

11 cases of Cerebro-Spinal Fever, in 7 of which the diagnosis was confirmed bacteriologically, occurred during 1919. The number of cases during the last five years was as follows:—1914, 1; 1915, 15; 1916, 7; 1917, 7; 1918, 5.

These figures show no serious increase of the disease.

*Monthly distribution.*—February, 3 cases; March, 1; April, 4; June, 1; December, 1.

*Distribution in Districts.*—Ardwick, 3; Hulme, 2; Rusholme, 2; Openshaw, 1; Gorton, 1; Moss Side, 1; Cheetham, 1. The disease was thus widely spread over the City, and showed no signs of infectivity.

*Age incidence and fatality.*—Under 1 year, 4 cases; 1–5 years, 2; 5–10 years, 1; 10–15 years, 2; over 15 years, nil. 7 deaths occurred, giving a mortality rate of 63·6 per cent. 3 made complete recoveries, and one recovered, though with permanent blindness. In all those recovering the meningococcus had been demonstrated in the cerebro-spinal fluid.

*Infectivity.*—Amongst 58 family contacts there was no spread of infection, nor was the source of infection discovered in any of the notified cases. In fact there had been close relation with returned soldiers, but investigation excluded these soldiers as carriers.

The examination of naso-pharyngeal swabs from close contacts is carried out as far as possible. For this purpose the contacts attend at the Public Health Laboratory, so that culture plates may be directly inoculated. 48 contacts were to this end persuaded to make the visit, and in no single case were they found to be harbouring the meningococcus.

Following Table gives some particulars of the cases notified.

Bacteriological examination	Date of Onset		Date of Notification		Removed to Hospital	Remarks
None	June	3	July	1	..	Died July 10th
Positive	April	9	April	10	April 10	Died May 19th
Positive	April	9	April	29	April 30	Died May 2nd
None	April	13	April	13	..	Died April 13th
Positive	April	15	April	21	April 21	Recovered, with blindness
None	March	3	March	15	..	Died March 11th
Positive	February	24	March	3	March 3	Recovered
Positive	February	19	February	21	February 21	Recovered
Positive	December	31	January	5	..	Died February 19th
Positive	February	13	February	17	February 19	Recovered
None	June	9	June	11	..	Died June 6th

Three cases were notified after death. Of the remainder, six were removed to Isolation Hospital at Monsall, where they were treated by repeated injections of Gordon Porter No. 1 and 2 serum with apparently good results, which would possibly be better if the patients came under treatment earlier.

#### *Other Forms of Meningitis.*

Fine cases of illness reported as Cerebro-spinal Fever proved upon investigation to be due to the following causes :—Tubercular Meningitis, 3 cases ; Septicoccal Meningitis, 3 ; Influenza, 1 ; Broncho-Pneumonia, 1 ; nil, 1. In addition to these, and apart from cases of notified Tubercular Meningitis, there occurred 65 deaths certified as due to Meningitis in which no adequate investigation could be made.

#### ENCEPHALITIS LETHARGICA.

This is either a new disease in Manchester or it may be that in former years such cases have occurred and have been classed in the death returns under the general heading of Meningitis. Every year a considerable number of deaths are certified as due to Meningitis in which it has been found impossible to obtain a satisfactory explanation of the causation factor.

During 1919 ten cases were notified and accepted as Encephalitis Lethargica. Five males and four females, all adults except one, were affected, and all the cases died fatally save in one instance, that of a woman aged 29 years, who recovered without ill-effect. The ten cases occurred in eight different districts, and no connection between them could be traced.



The reports on each case are filed in the Public Health Office, and it is proposed here to analyse the symptoms in any detail. Paralysis of the third cranial nerve was noted in three cases, of the seventh nerve in two; ptosis present in three cases, nystagmus in two, and aphasia in one. In all, the general symptoms were associated with increasing lethargy. In two of the patients there was no paralysis of any sort. Examination of the cerebro-spinal fluid carried out in five of the cases showed the fluid to be free from organisms.

### POLIOMYELITIS AND POLIO-ENCEPHALITIS.

*Poliomyelitis*.—8 cases were notified, all in children under 7 years of age. The groups of muscles affected were as follows:—Case 1, the whole of both legs and thighs; case 2, all the muscles of right leg and thigh; case 3, extensors of right thigh; case 4, flexors of left thigh; case 5, extensors and flexors of right foot; case 6, extensors and flexors of right foot; case 7, paresis of both legs; case 8, extensors of right foot. Case 7 recovered completely; the remainder recovered with permanent paralysis, and in March, 1920, were still receiving treatment at a voluntary hospital or by massage at one of the Child Welfare Centres.

In addition to the cases noted above, Health Visitors in the course of their work discovered 8 children with paralysis of one or other of their limbs, which was probably due to an old attack of acute Poliomyelitis of which we had previously been cognisant, and the mothers of these children were advised to the steps which should be taken to obtain appropriate treatment.

The source of infection was not traced in any, though Nos. 1 and 3 appeared to be closely associated. These were two cousins, A and B, aged 4 years and 5 years.

They frequently met, and they last played together at B's house on May 31st. On June 2nd A went to Blackpool, and he began to be ill on June 6th; B, who was at home, began to be ill on June 7th. It seems likely that both were infected from a common source on May 31st, in which case the incubation period was 6 and 7 days. All the family contacts remained well, and the origin of infection was not revealed by investigation.

*Polio-Encephalitis*.—4 persons suffering from this disease were notified, M. 13, F. 3, F. 40, and F. 65 years. The boy completely recovered, the other three died. In one of the cases the diagnosis was not clearly correct, Landry's paralysis or post-diphtheritic paralysis being considered as possibilities. Examination of the cerebro-spinal fluid in two of the cases showed the fluid to be free from organisms.

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## MALARIA.

BY DR. W. A. YOUNG.

The number of cases of Malaria notified during 1919 was 312. The notifications came from the following sources :—

Medical Practitioners	Army Discharge Centres	Either directly from Medical Officers in charge of Medical Boards or indirectly through the Ministry of Health
296	2	47
296	2	47 less 33
298		14
312		

Of the 47 cases notified by the Medical Officers at Medical Boards, 33 had previously been notified by medical practitioners, with the exception of one male case who contracted the disease in Burma seven years ago ; all the cases notified were ex-service men who had seen service overseas either in the late war or in earlier campaigns. Further, with the exception of seven men, all of the cases notified had received treatment for Malaria while in the Army.

The medical attendants of five of these seven men were requested to obtain blood films at the commencement of the next pyrexial attack. In two cases malarial parasites of benign tertian type were found, but in three no malarial parasites were found.

Of the other two men who had received no treatment for Malaria in the army, one had served for four years in Egypt and Palestine, while the other had served in France and was a doubtful case.

When investigating cases of Malaria particular attention is paid to the question of treatment, whether quinine is taken or not, and if taken, under whose directions.

It has been found in the great majority of cases that the patients do not wish to go into hospital unless their home conditions are bad and the pyrexial attacks are frequent and severe, or in cases complicated by other disabilities.

The Sanitary Inspectors when investigating cases of Malaria in ex-servicemen always explain to the patients or their relatives the procedure which the Local War Pensions Committee requires to be carried out in order that malarial patients may receive hospital treatment.

The hospital accommodation for these cases was provided by the Military Hospitals so long as they remained open, but after they were closed the patients were sent to a special hospital for tropical diseases which was opened by the British Red Cross Society.

*Cases admitted into hospital during the year.*

One patient suffering from Erysipelas admitted to Monsall Fever Hospital and one patient suffering from Tuberculosis of the Lungs admitted to Bagnall Sanatorium were the only cases of Malaria treated in municipal institutions during the year.

Eight of the notified cases were immediately admitted to hospital by the Local War Pensions Committee.

Several of the notified cases were removed to hospital as the result of subsequent attacks or relapses without being again notified.

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## DYSENTERY.

BY DR. W. A. YOUNG.

Six cases of Dysentery were notified during the year. All the patients were ex-soldiers and had served overseas, the attacks in question being relapses of the old complaint.

Four of these cases received hospital treatment at some time or other since their discharge from the Army and two were treated at home. One case died, the cause of death being stated as Dysentery-Hepatic abscess.

The examinations of the discharges of these patients gave positive results in only two instances (one amoebic and one bacillary); the others proved negative. From the history of the cases and on clinical evidence three were notified as amoebic cases and one as a bacillary case. There have been no cases of illness simulating Dysentery in any of the houses of these patients.

20 Dysentery carriers were notified by the Ministry of Health during the year. Each carrier was immediately investigated, special note being made of his occupation or trade with a view to taking action in order to protect food supplies from possible contamination.

the nature of the infection in the 20 carriers was as follows :—

Amoebic.. .. .	17
Bacillary .. .. .	2
Amoebic and Bacillary .. .. .	1
	<hr/>
	20

On investigation it was discovered that only two carriers found employment in the preparation or handling of foodstuffs. Both were butchers and both were carriers of Amoebic Dysentery. Since his return to civil life one of the butchers has given up his former occupation and found employment in a brass foundry.

With the object of limiting the spread of infection as far as possible a leaflet was drawn up early in the year 1919, detailing the precautions to be taken by carriers of Dysentery, Typhoid and Paratyphoid Fevers, and a copy of this leaflet is left by the Inspector when he is investigating these cases.

All notified cases of Dysentery and carriers of the disease are visited every three or four months and the health of the patient and that of the other members of his family is carefully investigated. These investigations have not so far revealed any suspicious symptoms among the members of a carrier's family or among his workmates. In this way it has been possible to keep a record of men living in Manchester who might at some future date become sources of infection. The leaflet mentioned above is as follows :—

PRECAUTIONS TO BE TAKEN BY CARRIERS OF DYSENTERY, TYPHOID AND  
PARA-TYPHOID FEVERS.

*The Public Health (Pneumonia, Malaria, Dysentery, etc.) Regulations, 1919.*

The disease from which you have suffered occasionally leaves the patient in such a condition that the discharges from the bowel and, in some instances, the bladder, contain the germ of the disease, although the patient may be sufficiently recovered to resume his ordinary occupation. These people are known as "carriers" of the disease in question. They may remain carriers for months or, as is the case in certain instances, for years.

All carriers are therefore sources of infection and are liable to spread the disease.

With the object of limiting the spread of infection as far as possible, the following precautions to be taken by the carriers have been drawn up :—

- (1) The carrier must on no account take part in any trade or business concerned with the preparation or handling of food or drink for human consumption. (A penalty of £100 is imposed for such an offence.)
- (2) He must also refrain from taking part in the preparation or handling of food or drink for human consumption in his home.
- (3) As the infection is very liable to be carried by the hands of the carrier, great care should be taken to avoid fouling the hands. The hands should be carefully washed whenever the carrier has used the closet. This is very important and should be done immediately after the closet has been used,



- (4) The motions ought to be dropped directly into the water closet and not received into any other receptacle, unless such receptacle and its contents are disinfected by pouring in and thoroughly mixing with the motions at least an equal quantity of a five per cent. solution of Carbolic Acid or Izal.
  - (5) The urine in cases of Typhoid and Para-Typhoid Fevers must be dealt with in the same way as the motions of such cases.
  - (6) Carriers ought not to visit public baths. If the bath at home is used it ought to be carefully washed out after use with a five per cent. solution of Carbolic Acid, Izal, or Cresol.
  - (7) Clothing fouled by excreta ought to be placed in a five per cent. solution of Carbolic Acid, Izal, or Cresol for twenty-four hours, before being washed.
  - (8) Whenever the carrier suffers from any symptoms which from experience he ascribes to a relapse of his old disease, he ought to inform his doctor at once, so that if it proves to be a relapse he may receive suitable treatment.
  - (9) In the event of a member of a "carrier's" family showing symptoms similar to his own, he should at once call in his medical attendant.
- If the spread of infection is to be prevented the strictest attention must be given to the above precautions.

(Signed) JAMES NIVEN,  
*Medical Officer of Health.*

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## TRENCH FEVER.

BY DR. W. A. YOUNG.

One case of Trench Fever was notified during the year. The patient was an ex-soldier who had served with the army in France, where he had his first attack in April, 1918.

He was treated by his own medical attendant at home, where he was well isolated. No other members of the household complained of symptoms simulating the disease. The house was very clean and there was no evidence of the presence of lice or other vermin.

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## TUBERCULOSIS.

(a) The scheme of the Council for dealing with Tuberculosis may be said to consist of three sections.

A.—A public health section in which a staff of Inspectors enquires into every circumstance of the life of a notified case of Tuberculosis, traces the source and ramifications of infection, advises as to personal precautions, furnishes the materials required for avoidance of infection, sees that all necessary measures of cleansing and disinfection are carried out, enquires into the circumstances of the family and as to any help which may be required, whether in the form of treatment or otherwise.

This part of the work was in full operation in 1911, before the Insurance Act came operative, but all the hospital accommodation available was at Clayton Hospital for advanced cases of Pulmonary Tuberculosis and 20 beds at the Crossley Sanatorium for early cases.

This work was greatly extended by the obligatory notification of all forms of Tuberculosis. A section relating to this work occurs at p. 117. The actual administration, however, is under Dr. Sutherland.

3.—Under the Government scheme for the provision of Sanatorium benefit treatment of Tuberculosis was greatly extended. This scheme provided for establishment of a dispensary, and of separate accommodation for early and advanced cases of Pulmonary Tuberculosis, and for special treatment of insured tuberculous patients in their own homes. The Manchester City Council gave effect to these proposals, so far as institutional treatment was concerned, by converting the Baguley Sanatorium into a hospital for advanced cases of Pulmonary Tuberculosis, and making provision for 308 patients. It was not intended, however, that these should be unmixed severe cases all of an advanced character, though there is a tendency in that direction.

In order to provide beds for early cases, they entered into an agreement with the Board of the Consumption Hospital that 62 out of a total of 100 beds at their Crossley Sanatorium should be allocated to the Council.

They also took over from the Chorlton Board of Guardians the Abergele Sanatorium, at which there was accommodation for 46 adults suffering from Pulmonary Tuberculosis and 9 cots (now 10) in which they agreed to treat cases of children suffering from surgical Tuberculosis to be nominated by the Board of Guardians. They also arranged with the Manchester Royal Infirmary for treatment of insured persons suffering from surgical Tuberculosis.

In addition, the City Council, through the Education Authority, provide some beds for surgical Tuberculosis in children of school age at their Swinton House School and 40 beds at Summerseat, Bury, for so-called pretuberculous cases in girls.

More lately, 28 beds have been provided at Monsall Hospital to relieve the pressure caused by the need of accommodation for ex-service men suffering from Tuberculosis. The total accommodation provided by the Council at present may be put at 564 beds.

At the same time as they arranged with the Board of the Consumption Hospital for the allocation of 62 beds in their Crossley Sanatorium the Council entered into an agreement with the Board for the use of their dispensary, and with the Physicians attached to the Consumption Hospital for the continuance of their services in respect of tuberculous cases under the Council. In this agreement is included their visits to the Crossley Sanatorium as Consultants.

It was apparent that Dr. Sutherland, who had previously acted Tuberculosis Officer, would require Assistant Medical Officers. The number fixed was three, but two were appointed, viz.:—Dr. R. Briercliffe and Dr. A. B. Porteous.

When the agreement was made with the Board of the Consumption Hospital that their physicians should be taken over, it was provided that any vacancies which might arise would be filled up by a whole-time officer appointed by the Corporation. This of course does not preclude the Board from appointing additional medical officers, which they have done.

It was anticipated that the dispensary would require to be in very full use and that a great increase in the number of patients would occur. This has proved to be the case to the extent anticipated. Still the increase has been sufficient to require Dr. Sutherland and his Assistants to take part in the work of the dispensary. Three additional sessions have become necessary, viz. on Monday, Wednesday, and Thursday afternoons. These clinics are staffed by whole-time assistants, as are also two of the morning clinics on Wednesday and Saturday.

The treatment of insured cases at home (domiciliary benefit) has remained much as it was, except that by the regulations of the Local Government Board the panel practitioners were brought into close relationship with the Tuberculosis Officer, furnish him with regular reports, and consult with him in difficult cases.

Though the work of administration has been very heavy, much good has followed from this fact, as the Medical Panel Committee have thus been brought into friendly co-operation with the Tuberculosis Officer.

The difficulty which baffles both the Committee and the Council's medical staff is the late period at which notification of cases of Tuberculosis is made.

By the aid of the Medical Panel Committee the difficulty has been reduced but there is still much to be desired in this respect.

A feature of the Manchester work is the establishment of two grants, one from the City Council of £2,000 per annum, which is used for the benefit of poor households invaded by Tuberculosis in such a manner as to raise the resistance of the family to infection. It is also useful inasmuch as it assists in getting the needful preventive rules carried out in the household. The other fund amounts to £800, contributed by the Insurance Committee. This is utilised by the Tuberculosis Officer to give necessary assistance to tuberculous persons. Both funds are administered by the Care Committee through Dr. Sutherland.

c. The third branch of the Council's scheme is the provision made for the detection of tuberculous milk, and for dealing with it when detected.

the procedure is governed by the Model Milk Clauses modified from the Manchester Milk Clauses which were obtained in 1899. The persons chiefly concerned in carrying out these Milk Clauses are the Veterinary Surgeon and Professor Delépine. A report on this work for 1919 will be found at p. 77.

From the above institutional provision it will be seen that there is one serious deficiency. There is very inadequate provision for tuberculous children, although it should be recognised that much excellent work is and for many years has been done in this regard by the Manchester Children's Hospital and other voluntary institutions dealing with children.

It is also true of the Booth Hall Infirmary, under the Board of Guardians, this institution doing excellent work and providing 400 beds.

Nevertheless the need continues, as can be easily seen from the figures relating to the notification of cases both of medical and surgical tuberculosis in children. See p. 116 and corresponding Tables in previous reports.

The City Council have before them proposals for the provision of a Sanatorium for children at Abergele to contain 500 beds, and to extend the accommodation for adults suffering from early Pulmonary Tuberculosis by 40 beds, and the Medical Officer of Health have informally approved of the scheme while giving valuable assistance in improving it. The plans have been prepared by the City Architect in consultation with the Medical Officer of Health and Dr. Sutherland, whose knowledge of hospital administration greatly assisted in the planning out of the proposals.

*The adequacy or otherwise of the provision made.*

When the above provision was made, it was recognised that the accommodation provided was not sufficient for advanced cases of Tuberculosis, but it was a large initial provision, and experience alone could show what the whole system of treatment could effect.

It must be admitted, I think, that the scheme taken as a whole has been successful, though the improvement is far greater at early ages than at later ages.

That is because these ages have derived benefit from all three branches of the Council's scheme.

The Abergele Sanatorium for children prove the success which I anticipate, and will go far to supply an answer to the question whether the Tuberculosis of children is acquired in childhood or is acquired later. In my opinion it is for the most part acquired later. At all events one may record one's conviction that this scheme is quite adequate.

Is the provision for early cases adequate?



It is difficult to say. It may be that in the future, as the disease becomes rarer, its perilous and distressing character will be more felt, and notification of the disease will occur earlier. In that case the accommodation for early cases may prove inadequate.

Under existing conditions it will be adequate with the addition proposed at Abergelge Sanatorium for the treatment of adults.

As regards the provision for advanced cases, when we ask whether the accommodation is adequate, it is necessary to enquire, adequate for what? If the measure of adequacy be that all the cases of advanced Pulmonary Tuberculosis seeking treatment can be accommodated, at the present rate of reduction of the disease, the time is not far off when the provision already made will suffice. But that is not a proper test of adequacy. What is wanted is not a long duration of agony under which the disease slowly retreats, slaying as it retires, something in the nature of a rout. If we are to achieve this, the advanced consumptive must not be sent back to the community to engage in a hopeless struggle with circumstances, disseminating infection meanwhile. He must be withdrawn from the economical struggle and subsidised by the community so that he may be content to settle in a colony with his family. In this I am in agreement with the Tuberculosis Officer that our hope lies of a more rapid diminution of the disease. It is not then so much that the provision of hospital accommodation for advanced cases is adequate or inadequate as that the policy to be pursued in any extension is in an entirely different direction.

Meanwhile, until it is possible to acquire land and other facilities for a colony, I should advise that no extension of accommodation for advanced cases be made.

*e.* The Medical Profession in general co-operate cordially with the Tuberculosis Officer.

*f.* There are not a few patients who do not wish to leave their homes and the care to which they are accustomed, but on the other hand there is generally a waiting list for all the Sanatoria during summer. As regards diagnosis, patients are not so ready to apply for diagnosis as is desirable. This arises from fear of losing work and also from the dread of finding themselves seriously ill.

*g.* Ample arrangements are made at the Tuberculosis Office, which also acts as the Dispensary, for home visits by qualified nurses.

Contacts are sought out by these nurses, also by the various Tuberculosis Medical Officers and Consulting Physicians, who examine patients at the Tuberculosis Office and the Dispensary, and the contacts found are examined either at one or the other place. The two buildings are in direct communication.

"*After-Care*" work is carried out according to the recommendations of the Tuberculosis Officer. He also seeks out suitable work for cases on their discharge from Sanatoria.

All cases of Tuberculosis known to the Tuberculosis Office are under constant and skilled observation from the day of notification until the end of their stay or of their life in Manchester.

TABLE I.  
NOTIFICATIONS—1919.

Periods . . . . .	NOTIFICATIONS ON FORM A												Total Notifications on Form A	NOTIFICATIONS ON FORM B				Total Notifications on Form B	NOTIFICATIONS ON FORM C	
	Number of Primary Notifications													Number of Primary Notifications					Poor Law Institutions	Sanatoria
	0-	1-	5-	10-	15-	20-	25-	35-	45-	55-	65-	Total Primary Notifica- tions		Under 5	5-	10 to 15	Total Primary Notifica- tions			
Pulmonary Males . . . . .	2	26	66	51	87	62	145	210	166	69	27	911	1,090	..	1	..	1	2	118	981
Females . . . . .	..	18	52	69	82	92	135	114	48	43	26	679	828	..	..	..	..	1	40	368
Non-Pulmonary Males . . . . .	13	42	43	33	25	8	11	11	10	5	3	204	247	..	..	2	2	3	17	13
Females.. . . .	10	33	43	41	38	13	20	12	9	5	3	227	279	..	..	1	1	1	17	6
Totals.. . . .	25	119	204	194	232	175	311	347	233	122	59	2,021	2,444	..	1	3	4	7	192	1,368



## NOTIFICATION OF TUBERCULOSIS.

The figures for the number of cases notified in 1919 is shown in table 1 prepared for the Ministry of Health (inserted, page 116).

Tables 2 and 3 show the course of notification for a number of years. In the earlier years notification of Tuberculosis of the Lungs was not compulsory, in fact not until 1912, from which year a comparison is possible with recent years. It will be seen that even during the war there was a tendency for the number of notifications to go down. As regards other forms of Tuberculosis it would not be safe to start our comparison before 1914, since in 1913 a number of chronic cases were notified. The number of these notifications ascended during the war, but not markedly. The condition of the milk supply deteriorated during the war, and the adverse influences acting on Tuberculosis of the Lung affected this class of case also.

The following are tables pertaining to the year 1919:—

TABLE 2.

### PHTHISIS—NUMBER OF NEW CASES OF PULMONARY TUBERCULOSIS NOTIFIED DURING THE YEARS 1900 TO 1919.

Year	Poor-law Cases	Institutions	Private Practitioners	Total
1900*	578	455	540	1573
1901	625	373	341	1339
1902	667	305	303	1275
1903	556	550	251	1357
1904	512	440	250	1202
1905	527	588	291	1406
1906	565	510	304	1379
1907	634	646	310	1590
1908	659	498	346	1503
1909	681	542	384	1607
1910	543	760	356	1659
1911	517	897	423	1837
1912	488	947	969	2404
1913	345	717	1350	2412
1914	483	877	1304	2664
1915	279	740	1194	2213
1916	322	817	1410	2549
1917	470	716	1061	2247
1918	268	563	1015	1846
1919	208	538	845	1591
Total	9927	12479	13247	35653

\* This table does not include 425 cases notified in 1899.



TABLE 3.

NEW CASES OF NON-PULMONARY TUBERCULOSIS NOTIFIED ON FORM A DURING THE YEARS 1913-1918, THE ORDER OF THE LOCAL GOVERNMENT BOARD TAKING EFFECT IN FEBRUARY, 1913. (MALES AND FEMALES.)

Year	Total	
	Males	Females
1913 .. ..	759	713
1914 .. ..	509	395
1915 .. ..	415	411
1916 .. ..	416	463
1917 .. ..	432	447
1918 .. ..	343	350
1919 .. ..	204	227
TOTAL .. ..	3,078	3,006

In considering Table 1 we may confine our attention, in the first instance, to primary notifications on form A. In the Annual Report for 1918 a marked fall in the number of notifications was noted under both Pulmonary and Non-Pulmonary Tuberculosis. When the table for 1919 is compared with that for 1918, a further striking fall in the number of cases notified is observed. Taking all forms of Tuberculosis, the number of primary notifications on form A dropped from 2,531 in 1918 to 2,021 in 1919. The notifications of primary cases of Pulmonary Tuberculosis dropped from 1,838 in 1918 to 1,590 in 1919, while those for Non-Pulmonary Tuberculosis fell from 693 in 1918 to 431 in 1919.

The drop is greater for males than for females under both headings. No marked difference is noted between Pulmonary Tuberculosis in males up to the age of 15, after which, at every age group, there is a conspicuous fall in 1919. The corresponding fall, in the case of females, however, affects only the age periods 25-54. In the case of Non-Pulmonary Tuberculosis there is no decline in the number notified in the first year of life. At every other age group there is a very striking fall. The first year may in this regard be put aside. There are possible fallacies in these figures. But I am not aware of any cause which would lead to a wilful or careless neglect of notification. On the contrary, the relations between the Tuberculosis Office and Practitioners are very cordial, and it is believed that notification is now being well carried out. It may be suggested that the deaths at corresponding groups of ages will act as a check on these figures. This is by no means clear, since deaths occur out of cases notified in previous years, and to a minor extent in the year under consideration. Nevertheless they will help to determine whether the fall marks a decided advance or not. The figures in Table 4 show a corresponding fall in the number of deaths.

It is a matter for much congratulation that the steps already taken appear to be reducing the disease to a point at which, even with our existing equipment for adults, it will become manageable.

There is one consideration which should induce us to increase our efforts. It by no means follows that the number of Tuberculous persons in the community is less than it has been at former times. The fall in the death-rate may be due, and is in fact largely due, to the increased efficiency of treatment, not only in our Sanatoria but on the part of Practitioners generally. Partly owing to this cause, partly to the return of a number of ex-service Tuberculous men, the actual number of cases of Tuberculosis under observation is shown by Table 4 to be considerably higher at present than at any previous period.

This accumulation of cases may even increase for some years, and is itself a danger, unless we bestow on old cases as much care as on new ones and are able to effect an aggregate reduction of infection. This figure will be the last to yield. But when it does give way the end of Tuberculosis is approaching.

## CITY OF MANCHESTER.

TABLE 4.—PRIMARY NOTIFICATIONS ON FORM A AND DEATHS FROM PULMONARY AND NON-PULMONARY TUBERCULOSIS, 1917-1919.

Pulmonary Tuberculosis		0-	1-	5-	10-	15-	20-	25-	35-	45-	55-	65+	Total
Notifications, 1917	.. .. .	12	65	152	166	194	185	410	432	335	181	104	2,236
" 1918	.. .. .	1	46	106	115	200	177	373	352	278	136	54	1,838
" 1919	.. .. .	2	44	118	120	169	154	280	324	214	112	53	1,590
Total .. .. .		15	155	376	401	563	516	1,063	1,108	827	429	211	5,664
Deaths, 1917	.. .. .	4	20	20	42	110	109	189	273	237	121	71	1,196
" 1918	.. .. .	3	19	16	41	100	84	197	237	230	129	47	1,103
" 1919	.. .. .	2	14	19	26	88	92	162	212	195	100	41	951
Total .. .. .		9	53	55	109	298	285	548	722	662	350	159	3,250
Non-Pulmonary		0-	1-	5-	10-	15-	20-	25-	35-	45-	55-	65+	Total
Notifications, 1917	.. .. .	32	186	172	169	103	49	62	39	29	21	17	879
" 1918	.. .. .	13	141	152	125	89	46	42	31	23	21	10	693
" 1919	.. .. .	23	75	86	74	63	21	31	23	19	10	6	431
Total .. .. .		68	402	410	368	255	116	135	93	71	52	33	2,003
Deaths, 1917	.. .. .	49	111	50	42	27	14	25	18	6	9	8	359
" 1918	.. .. .	23	86	35	37	29	15	12	12	14	14	10	287

Public Health Work is summarised in the following Table and Statement:—

TABLE 5.—STATISTICS RELATING TO THE NOTIFICATION OF PHTHISIS.

	1919	1918	1917	1916	1915	1914	1913	1912	1901 to 1911	1899 Sep. 1 to Dec. 31 1900	Totals
<i>Visited and Registered—</i>											
s .....	1031	1197	1431	1526	1448	1612	1543	1354	10256	1017	22415
ales .....	723	744	922	1109	1110	1094	1052	993	6077	732	14556
Totals ...	1754	1941	2353	2635	2558	2706	2595	2347	16333	1749	36971
<i>Disinfected—</i>											
y Corporation—											
) With solution											
of chlorinated											
lime only .....	2507	2431	2934	635	869	994	822	884	6728	581	19385
) With lime solu-											
tion only .....	0	0	0	0	0	0	0	0	17	109	126
†By Esmarch's											
method and											
solution of											
chlorinated											
lime .....	0	0	0	1878	2415	3123	3044	2842	11346	0	24648
Totals ...	2507	2431	2934	2513	3284	4117	3866	3726	18091	690	44159
y Tenants—											
Esmarch's method											
or Chlorinated											
lime, &c. ....	4633	4167	3523	1799	3580	4564	4050	3790	27780	1299	59185
Totals...	7140	6598	6457	4312	6864	8681	7916	7516	45871	1989	103344
<i>Specimens of Sputum Examined:</i>											
itive .....	305	401	465	721	781	1052	1165	1061	4375	104	10430
ative .....	1342	1081	1471	1720	1576	2269	2637	1876	7509	154	21635
Totals ...	1647	1482	1936	2441	2357	3321	3802	2937	11884	258	32065
reported as sent to							*				
hospital .....	2035	2315	2400	2078	1719	2718	2421	1874	17383	991	36214
ed from common											
ing-houses.. ....	80	117	143	172	212	283	243	201	2478	187	4153
er of cases under										about	
ervation .....	7318	6511	6898	6327	5690	5941	4848	4305	23949	600	...

\* number includes all forms of Tuberculosis. † Esmarch's method not used since 1916 owing to a Food Control Order.



3,402 special cases have been entered in the Business Book for investigation and cleansing after removal to hospital, change of residence, death, or under special circumstances.

372 tenants have allowed the removal of bedding, etc., for disinfection; and have themselves burned it in a few instances.

33,588 cardboard boxes have been prepared in the office and supplied patients for spitting purposes in the home.

244 spit bottles have been supplied for use outside the house.

8,702 visits have been made by the Enquiry Officers during the year.

33,909 letters were sent out, of which 284 were to owners with reference to the disinfection of houses, with subsequent correspondence in many instances.

844 notices warning against spitting on floors, etc., have been supplied to offices and workshops.

The fate of patients treated in the Crossley Sanatorium and Baguley Sanatorium is set forth in the following tables. Baguley Sanatorium is a institution for advanced cases, and the results are such as might be anticipated.

If patients treated in the Crossley Sanatorium do not show a high proportion of survivors, it is to be considered that cases have not been sent to this institution at a sufficiently early stage to obtain the best results.

TABLE 6.

## CROSSLEY SANATORIUM.

*Males.*

Year	No. of new cases	No. of re-admissions	Died in the Sanatorium	Died elsewhere	Lost sight of	Known to be still living Dec. 31st, 1919
1905 .....	16	1	..	11	4	1
1906 .....	18	2	1	14	3	..
1907 .....	29	2	1	21	4	3
1908 .....	36	3	1	24	9	2
1909 .....	27	4	2	15	7	3
1910 .....	27	5	..	14	8	5
1911 .....	38	2	..	24	7	7
1912 .....	53	3	1	28	13	11
1913 .....	151	3	..	64	37	50
1914 .....	184	8	1	65	66	52
1915 .....	140	10	3	41	44	52
1916 .....	118	8	1	25	42	50
1917 .....	113	12	..	19	41	53
1918 .....	98	18	..	8	15	75
1919 .....	114	24	..	1	2	111
Total ....	1,162	105	11	374	302	475

TABLE 6—*continued.*CROSSLEY SANATORIUM—*continued.**Females.*

Year	No. of new cases	No. of re-admissions	Died in the Sanatorium	Died elsewhere	Lost sight of	Known to be still living, Dec. 31st, 1919
1905 .....	14	..	1	9	2	2
1906 .....	14	1	..	10	3	1
1907 .....	16	2	..	14	1	1
1908 .....	13	3	..	12	1	..
1909 .....	16	1	..	11	2	3
1910 .....	11	4	..	6	4	1
1911 .....	18	2	..	11	4	3
1912 .....	31	3	..	11	10	10
1913 .....	67	..	..	7	31	29
1914 .....	69	5	..	11	26	32
1915 .....	67	5	..	10	35	22
1916 .....	74	3	..	9	33	32
1917 .....	68	5	1	12	17	38
1918 .....	61	9	..	7	16	38
1919 .....	62	5	..	1	5	56
Total ....	601	48	2	141	190	268

TABLE 7.

## BAGULEY SANATORIUM.

*Males.*

1912 .....	49	..	13	23	7	6
1913 .....	329	17	64	155	57	53
1914 .....	246	38	55	125	30	36
1915 .....	276	46	72	120	32	52
1916 .....	403	73	127	141	52	83
1917 .....	401	76	84	97	75	145
1918 .....	390	68	69	67	54	200
1919 .....	445	225	66	33	15	331
Total ....	2539	543	550	761	322	906

*Females.*

1912 .....	20	..	3	9	5	3
1913 .....	167	7	32	63	45	27
1914 .....	98	5	17	33	18	30
1915 .....	87	5	21	26	23	17
1916 .....	262	16	60	104	42	56
1917 .....	277	24	59	68	65	85
1918 .....	226	44	62	57	18	89
1919 .....	196	30	35	24	11	126
Total ....	1333	131	289	384	227	433

The number of cases of Tuberculosis in which the income of the individual or family showed varying amounts of deficit under an assumed standard of living, and the number in which assistance was given to the individual or the family, or both, is shown in the following tables:—

TABLE 8.

TABLE SHOWING PARTICULARS OF DISTRESS IN CASES OF PHTHISIS NOTIFIED DURING THE YEAR 1919, CLASSIFIED ACCORDING TO THE REQUIREMENTS OF THE FAMILY IN EXCESS OF THE INCOME. FOOD CALCULATED ON THE ATWATER SCALE + 100 PER CENT. HOUSEHOLD SUNDRIES CALCULATED ON MR. ROWNTREE'S SCALE + 100 PER CENT. EARLY IN 1917 THE SCALE WAS INCREASED BY 25 PER CENT. AND 50 PER CENT.; THEN MAY, 50 PER CENT. BOTH FOOD AND SUNDRIES; JUNE, 75 PER CENT. BOTH FOOD AND SUNDRIES; AND FROM AUGUST, 1917, ONWARDS 100 PER CENT. BOTH FOOD AND SUNDRIES.

Shortage up to ..... IN SHILLINGS.

Conditions affecting Individual Cases	- 5	- 10	- 11	- 12	- 13	- 14	- 15	- 16	- 17	- 18	- 19	- 20	- 25	Total
Living December 31st, 1919 .. ..	52	39	1	4	2	2	3	1	1	2	5	..	7	119
Dead December 31st, 1919.. ..	18	7	..	..	1	..	3	1	..	3	..	..	1	34
Relief from Guardians .. ..	6	3	..	1	1	2	4	1	1	3	2	..	7	31
Assistance from £1,500 (Family) ..	42	29	..	1	2	1	..	2	..	2	1	..	1	81
Assistance from £800 (Individual) ..	4	5	..	1	..	..	2	..	..	..	2	..	..	14

TABLE 9.

TUBERCULOSIS OTHER THAN PULMONARY. FROM CASES VISITED AND REGISTERED DURING 1919.  
SHOWING SHORTAGE IN INCOME.

Conditions affecting Individual Cases	Under 5/-	5/-	10/-	11/-	12/-	13/-	14/-	15/-	16/-	17/-	18/-	19/-	20/-	Total
Living December 31st, 1919 .. ..	13	1	1	..	1	..	..	1	..	..	1	..	1	19
Dead December 31st, 1919 .. ..	2	2	..	..	..	..	..	..	..	..	..	..	..	4
Relief from Guardians .. ..	2	..	..	..	..	..	..	..	..	..	..	..	..	2
Assistance from £1,500 .. ..	10	3	1	..	1	..	..	1	..	..	..	..	1	17
Assistance from £800 .. ..	..	..	..	..	..	..	..	..	..	..	..	..	..	..

If one compares this table with those given in former Annual Reports, say, for 1913, 1914, and 1918, it will be seen that the numbers given below the standard income are smaller in 1919 than in 1918, and that both are small compared with the numbers in 1913 and 1914. It is to be remembered, however,



that the standard income adopted bears to the pre-war standard the ratio of 200 to 100, whereas the proper ratio is at present more like 240 to 100. If this figure were adopted the numbers would be materially increased. It is to be observed that these tables do not present the total number of families assisted from the two funds mentioned. During the year 1919 153 patients received 536 grants of nourishment from the £800 fund, and 342 families received 1,265 grants from the £1,500 fund.

The supervision of the Care Committee work is in the hands of Dr. Sutherland, both for the £800 and for the £1,500 funds. Mr. Lock has, as usual, been unsparing of personal effort in the conduct of his work.

From these figures it will be seen that the decline in the deaths from Tuberculosis is as well marked for all forms of Tuberculosis as that exhibited by the notifications. It is difficult to resist the conclusion that Tuberculosis in Manchester is undergoing a marked reduction, and that it only needs a continuance of the efforts at present being made to ensure a rapid decline in the disease. The course of events would also appear to show that the lines of action followed up to now are good, as far as they go. These may be summed up as follows :—

- (1) Careful investigation, and instruction following on notification. Disinfection of the home.
- (2) A well-considered scheme of treatment, linked on to instruction in personal preventive measures.
- (3) Assistance to the families of Tuberculous patients to enable them to resist infection, and also to individual patients.
- (4) Instruction in diets.
- (5) Improvements in the conditions of housing extending over many years.

It will presently be possible to resume operations interrupted by the war, and to pursue lines of action partly suspended. Amongst such lines of action may be prominently put forward: Resumption of the work of removing insanitary dwellings, and the admission of more light to those which remain. The construction of dwellings so as to be free from damp, and which will enjoy free movement of air about them, as well as sufficiency of light in the rooms. Further improvements in the ventilation, lighting, and cleaning of factories and workshops, and in the facilities for personal cleansing afforded to the workers, and in other amenities. The reduction in hours of work has, perhaps, proceeded far enough, generally speaking. The establishment of colonies in association with sanatoria, to which tuberculous patients may retire, and where

they may live protected from the full competition of industrial life. An enlightened campaign of instruction in social economics, with special reference to dietetics and cooking. Removal of the smoke which now pollutes the atmosphere, and injures health and general well-being. The systematic medical examination of workers, with all the steps which may be found necessary to protect the general body from infection. It may be possible to take some steps for the housing of consumptive families in suitable cases in connection with the housing schemes of the Council.

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## THE SENIOR TUBERCULOSIS OFFICER'S REPORT.

BY DR. D. P. SUTHERLAND.

In giving a report upon the present position of the Anti-Tuberculosis work in Manchester, the main features of the problem may be here reviewed from a general consideration of the measures taken.

We are dealing with an infectious and contagious disease, different from the usual illness of that type by its length of duration. The problem of organising against it is a public health as well as a clinical one.

In the first place, what help is given by the existing Public Health Regulations. There is a Notification Order of 1912 under the Public Health Acts which provides for all cases of Tuberculosis wherever occurring.

A large number of these notifications come from general practitioners, *e.g.*, in the last five years, out of a total of 10,437 new cases of Phthisis notified, 5,525 were sent in by practitioners. It is to them in the first place that the vast majority of cases of Tuberculosis present themselves, and it is well to state at the outset that no scheme that does not take into consideration in every possible way the work of the practitioners can be regarded as complete, nor is its effect likely to be successful.

In order to obtain knowledge of the existing amount of disease in the district it is necessary to have these notifications at the earliest possible moment. For this we are dependent not only upon medical men, but also upon the general public. It must be made evident to both that notification is followed by some definite beneficial executive action upon the part of the department concerned. Very frequently the main object that is in the mind of patient and doctor is the removal, as soon as may be, of the patient from his present condition of living. That is to say, sanatorium treatment is expected, and often at a stage in the patient's resistance where he has succumbed badly to his environmental circumstances. In cases like these an earlier appreciation of the difficulty of checking a retrograde movement might make the difference between the success and failure of subsequent measures of relief.

The whole work of a scheme is not, however, wrapped up in its sanatorium treatment, although this has as its aim all the elements towards which we labour, namely :—

- Restoration of health,
- Recovery of working capacity,
- Limitation of infection.

It is in regard to all of these that executive action is needed, apart from, as well as in addition to, the provision of the institution.

As soon as possible following notification a visit is paid to the patient by a trained inspector or qualified nurse, the nature of the disease is simply and patiently explained to the sufferer, in order that as far as is necessary he may appreciate the need for the subsequent advice.

Directions are given him as to his diet, and the importance of this in helping his recovery insisted upon. Too little care and too vague notions obtain in this respect, and some detailed guidance is necessary for each individual.

The advantages of sunlight, ventilation, cleanliness, and absence of dust have each to be pointed out and dwelt on.

The importance of regulated rest and exercise, the need for suitable clothing and especially of sound footwear, and a training in temperature-taking find their place also in the educative function of the health department.

In addition to this, the customary advice in respect of disposal of sputum, the control of cough, and the necessity of individual eating appliances is given whilst the methods of destroying the bacilli by the sterilization of all objects likely to be infected find a place.

An endeavour is made to see each member of the household, and any suspects are referred for examination.

The house is the subject of careful sanitary inspection, any existing defect being noted and brought to the attention of the owner, whilst suggestion as to the arrangement of the tuberculous person's room is given in full when the question of isolation is being dealt with.

Much may be done in this way even with unpromising material, but in too many of present-day town dwellings the counsel is one of perfection that may be approached but not reached.

These enquiries and instructions, given by specially appointed officers, are recorded in a systematic way in the department.

Following this preliminary investigation, the applicant for sanatorium benefit is seen by one of the Tuberculosis officers or part-time consultants, who supplements the advice that has been given, and in consultation with the practitioner determines the exact diagnosis and the form of treatment advised.

It has also been found materially helpful for the Tuberculosis officer to draw up, in conjunction with representatives of the local profession, an agreed upon statement in regard to the subject of diagnosis.

For effective and economical administrative action it is necessary that we should distinguish between those infected by Tuberculosis and those definitely suffering from that infection. It is the latter only, whose resistance is diminished, and in whom progression of disease is occurring instead of spontaneous cure, that it is our aim to reach.

The infected but naturally arrested and inactive cases *may* be found byaborious methods, but from the practical side they do not in the main require attention.

Infection comes from active cases, and these are the first problem facing us. It is not practicable to supervise the entire community, nor is it necessary in a disease where so many natural recoveries occur.

In the matter of diagnosis nothing can replace careful investigation and examination.

Where a sputum is obtainable and tubercle bacilli are demonstrated the diagnosis is definite and in no doubt. But caution must be exercised, lest too persistent harping upon this the fallacy of disregarding a negative sputum be encouraged.

The type of onset of the illness is of importance, and the length of duration of persistent ill-health always make us suspicious, and all efforts must be made to exclude other forms of disease.

I would place in the first rank of importance a persistent slight rise of temperature associated with failing strength and inability to do the ordinary day's work without excessive fatigue.

A temperature also remaining up for a few hours after moderate exercise of great import.

The persistence of localised physical signs of catarrh in a lung apex after careful repeated weekly or bi-weekly examination is also of great significance, and if associated with cough and loss of weight would point to tubercle.

The special examinations, *e.g.*, by X-rays, tuberculin, complement fixation tests, etc., may be called in as auxiliaries, but by themselves they are useless.



There is no short cut to diagnosis, and it often occurs that only the reaction to anti-tuberculous treatment points out finally that our suspicions were well founded.

If a doubtful case presents itself, it may, if under a practitioner, be referred back to him for further observation, and certain lines of observation are indicated. The case is referred again within a fixed short period for re-examination together with the result of the advised methods of observation. If this is sufficient to determine the diagnosis the case is admitted for one month on an observation bed at Baguley.

When a diagnosis has been arrived at, the question of appropriate treatment comes under consideration. Sanatorium benefit under the Insurance Act at present in force includes four forms of treatment, *i.e.*, domiciliary, dispensary, hospital, and sanatorium.

The bulk of the cases will in the first instance have been seen at the dispensary and it is the main function of this unit to act as a clearing house and a centre of instruction. Various types of case may be recommended for domiciliary treatment. For instance, early cases with few or no physical signs and little or no impairment of working capacity. Provided that these cases are in comfortable circumstances, where a sanatorium régime can be adopted, they may quite well, under careful instruction, be left where they are. Other cases who are able to work may be unwilling to leave their homes and occupations, and until it is generally recognised that provision is necessary for them depending upon the affected individual these cases also may have to remain under domiciliary treatment.

At the other end of the scale is the advanced case who can be isolated, to whom it is unsafe to move for any reason. In all these cases regular periodic visiting by trained nurses is necessary, in order that they may report to the Tuberculosis Officer upon the conditions and notify him at once of any change of any description.

The dispensary cases are those who are under observation, a certain number of cases who are stationary or chronic and not markedly infective, and those cases who have returned from a course of institutional treatment. In order that their future work, treatment, and care may be determined. Convalescents and suspects also form a large bulk of the cases attending. It is not intended to maintain a treatment centre.

The advanced cases form a large and important group, and ample provision is required for them in hospital. This institution receives infective cases removed from the community, and it has a large function also in its educational aspect.

Sanatoria are reserved for the earlier cases where the disease is not advanced where fairly complete recovery to working capacity can be anticipated. Here, again, its educational value cannot be over estimated, and it should be the aim of those administering it to give the greatest possible attention to this part of the work. The patient must be taught the necessity of self-discipline and the danger that exists with regard to infecting others or reinfecting himself.

In both these institutional courses of treatment occupation of the patients by means of suitably graded work of as great a variety as possible should be insisted on, and occupations should be chosen of which the patient can see the immediate end.

A good deal of discussion has taken place round about the value of sanatorium treatment.

It has been found for some years now that sanatorium treatment, as it is to be understood, left a good deal to be desired, both in its direct value and its after effects.

The régime, if limited to overfeeding, rest, and fresh air, whilst excellent in some respects was very inadequate in others.

Let us concern ourselves at the moment only with the question of rest and exercise, and consider certain facts relating to it.

When an organ or organism is overstressed from any cause and is working at high pressure, it can only continue to function properly so long as its output is balanced by intake.

In the case of an individual infected with Tuberculosis the normal metabolism is likely to be upset in more than one way.

Provided that resisting power is good, then the body's reserve forces are able to meet unusual calls upon it. Consequently the action of the tubercle bacillus toxin is met by the reaction of the tissues' antitoxic products; and maybe, without any serious impairment of normal life.

A certain lowered vitality exhibited in more easily produced fatigue may be the sole effect. A corresponding diminution of the normal power output, naturally produced, will restore the balance of anabolism and katabolism in the class referred to. The destructive effect of the tubercular processes can then be stayed, and healing of the damaged tissue follows.

Absolute rest is only essential in cases with actively progressing disease. In the majority of sanatoria patients, and for a very large number, perhaps 90 per cent., of hospital cases, some amount of exercise becomes possible very early.

Wherever this is the case the exercise can be usefully applied in aiding physical and mental recovery of the patient, and it takes its most useful form in graduated work. This work leads to many advantages. It is possible that the patient receives from it direct benefit because of the auto-inoculation that takes place, and the consequent response of his resisting powers. It would appear that a most powerful agent in combating Tuberculosis is the patient's self-generated immunity. He benefits moreover indirectly in that his heart action and circulation improve, and he does not accumulate a mass of useless fat about his tissues, as he may easily do under a system of gross overfeeding and lack of exercise. His muscles are kept in activity, his digestion is improved, and increased weight is a truer indication of real body build and tissue repair.

The mental and moral benefits can scarcely be exaggerated. It is to the greatest degree depressing for a patient to spend useless, unoccupied time. He dwells upon the futility of his life, thinks too much of his complaint, desists of ever doing any work again, and becomes toneless, slack, and undisciplined. Naturally enough, in this state he is discontented and grumbling, and is prone to indulge in rule breaking of a more or less serious kind. His excess spare time is spent in lounging about, smoking, game playing, and following any less reputable pursuits as occasion offers or can be made.

These facts have been quite soundly established by their practical demonstration in many very varying districts of the country.

That being so, it is now necessary to follow the matter up to its next stage. After a course of sanatorium or hospital care carried out on the above lines, what is to become of the patient? Obviously it is impracticable to maintain him indefinitely at a sanatorium.

Those patients who achieve an arrest of the disease and whose intelligence and will power are sufficient to enable them to carry out the necessary hygienic rules of life may, if their circumstances are favourable, return to their homes and work. By favourable circumstances, however, must be clearly understood satisfactory financial conditions, good housing, and suitable occupation.

This class will very largely be recruited from a stratum of society at a high economic level. We must, however, deal with another type where the above circumstances do not obtain, and where, in addition, though the progress of Tuberculosis may have halted, it has not become arrested in the sense in which it is above. Is he to be sent back, still in many cases infectious, to unsupervised labour in the town or country where he contracted the disease, and where it will inevitably spread it, or is the treatment to be followed by further medical action? If suppression of Tuberculosis is desired there can only be one answer. What form is this action to take? In any case strict supervision of the

of the patient must be provided for, and with the numerous and uncoordinated forms of work conditioned by competition it must be exceedingly difficult, and in practice it is impossible, to obtain this supervision at present. Added to which are the considerations involved in the unsatisfactory conditions of work and living, which will be remedied very slowly.

The action to be taken therefore appears to be that provision must be made by any complete scheme for the association with hospitals and sanatoria of workshops and dwellings constructed and run on as ideal sanitary lines as present knowledge allows. The establishment of colonies, in short, where cases, otherwise unsafe to return to the stress of unregulated life and labour, may under good conditions work and undergo treatment at the same time. It must be recognised that a proportion of all cases of Tuberculosis will not be fit to return to the usual city life. Nor are they, in the majority of instances, fitted for agricultural work, which is only suitable for a very small portion. But at their own or a suitably modified form of labour these cases may be of service to the community and to themselves.

Each extension to the complete scheme is contemplated.

It will be seen from the foregoing that in broad outline the endeavour made is multiple one. The standard of health of the individual patient is to be raised, and resistance to what at present must be regarded as universal infection must be increased. At the same time the sources of infection must, so far as possible, be rendered as little dangerous as may be.

It is the chief object of the Tuberculosis Officer in his administrative capacity to keep in continuous touch with all tuberculous cases in his area. For this purpose he receives reports from his visiting nurses at regular and frequent intervals.

The domiciliary order of the Local Government Board provides for the reports from medical practitioners in respect of cases under their care being submitted to him. These sent regularly are a valuable aid in supervision. In addition, the sanitary inspectors, health visitors, school medical officers, welfare centres, and all general workers in the social field contribute materially to the information which is received by the department.

Arrangements are made by the Tuberculosis Officer to keep uniform and continuous clinical records, and these are filed regularly in the department registers, which contain when complete the life history of the patient.

Having given an account of what is done, it would be as well to see how this falls short of an ideal system. Such a system may briefly be forecasted,



First of all it is necessary that a due appreciation of the disease and results should exist, *i.e.*, the education of the people must be improved questions of health and sanitation.

The general public must realise the uneconomical methods existing present, under which a society compels its workers to toil, though ill and infectious, until they can toil no longer.

Early medical attendance and early recognition by the profession is necessary. Immediately a case is found, he and his entire family should be examined by the Tuberculosis Officer. It should be made possible for the patient to at once go into an institution—sanatorium or hospital—if the condition found necessitates it. There should be no waiting list, it discourages doctor and patient. Whilst there, no fretting worries in regard to his family welfare should interfere with his prospect of recovery, *i.e.*, provision on an adequate scale must be made for the maintenance of the home.

If unwillingness to go away exists, and the case is infective, compulsory powers of removal may be sought and exercised. They will only be applicable in extreme cases, but where such occur it is ridiculous that anyone should be allowed to continue the infection of his own and other families with a disease like Tuberculosis. Any other members of the family found affected should likewise have appropriate treatment, always having in view the three desiderata referred to at the beginning. If it appears likely that infection of workmen has occurred, they too should be examined. In any case periodical examination of all workpeople at their places of employment should be made. If the patient recovers and becomes non-infective, he should be allowed to return to his usual work if that is not unsuitable, and if he has to change his work with a consequent loss of wage, the difference between what he is able to earn and what is necessary for maintaining health should be made up out of national funds.

Co-operation with properly organised labour exchanges is advisable.

Very many are unfit to return to the community, and the provision of comfortable work must be faced. In their work of all kinds must be provided with reasonable recreation and opportunities for continuance of family life under well-defined conditions. The worker must receive payment for his work and be encouraged by the knowledge that he can be a useful member of the community. Nothing is so devastating to patients as the fostering of a belief that they can be of use and that initiative is to be suppressed.

Only by this method of segregation can we hope, with our present knowledge, to make any appreciable breach in the enormous mortality of Tuberculosis. In no other disease of an infectious nature do we doubt the efficacy of isolation and by no other disease do we suffer such a continuous drain upon the working capacity of the nation.

A scientific system of town planning, cheap travelling facilities, pure food, abatement of smoke nuisances, stricter and more scientific supervision of dangerous trades, many of which are only dangers because of the cheapness of human life, all will benefit mankind and raise the national resisting powers against invasion by any pathogenic organisms, the tubercle bacillus included. At immediately what is wanted is to remove the great mass of infection which has established itself.

In the following pages a summary of the work is given and tables, as in former years. In addition, 203 consecutive cases of undoubted Tuberculosis, which have received treatment and have recovered, are tabulated to show ultimate results. This table was prepared for me by one of the assistant officers, P. A. Galpin, and I would in this place record my appreciation of both his work and that of Dr. F. Butterfield.

Insured cases applying for treatment :—

1914 ..	{	730 Males.
	{	321 Females.
1915 ..	{	572 Males.
	{	315 Females.
1916 ..	{	747 Males.
	{	316 Females.
1917 ..	{	728 Males.
	{	359 Females.
1918 ..	{	642 Males.
	{	261 Females.
1919 ..	{	630 Males.
	{	255 Females.

Cases of discharged soldiers referred by the Insurance Commissioners for treatment—400.

Number of insured patients who had so far recovered that no active signs of disease were found—204.

Recoveries amongst uninsured cases—264.

Contacts examined at their homes and at the Dispensary—536; of these, definite signs of Tuberculosis were found in 22, and in 123 further observation is required, as they were suspicious cases of Tuberculosis.

Grants of food were made in 1,801 instances to 476 families, and 162 grants of clothing were supplied to 109 patients in Hospital and Sanatorium to enable them to derive full benefit from treatment.

Bedding, bedsteads, and cots, together with nursing appliances, have also been loaned in necessitous cases to secure isolation and adequate nursing at home.

Special visits to the number of 7,193 have been paid by the Tuberculosis Nurses and 1,506 visits by the Clinical Nurse who attends to domiciliary patients requiring surgical dressings and nursing care.

TABLE A.

SUMMARY OF PRIMARY EXAMINATIONS MADE BY THE SENIOR TUBERCULOSIS OFFICER AND ASSISTANT TUBERCULOSIS OFFICER IN 1919.

	Reason for Examination	Occupational Con- dition at Examina- tion	Diagnosis											Recommendations made															
			Pulmonary Tuberculosis			Tuberculosis of						Doubtful Tuberculosis		Other Diseases		No evidence of Tuberculosis		Recovery		No Disease									
			Stage I.	Stage II.	Stage III.	Larynx	Bones and Joints	Glands	Abdomen	Other Organs	Bronchitis	Heart Lesions	Other Diseases	No evidence of Tuberculosis	Recovery	No Disease	Delamere and Abergele	Baguley	Hardman Street Dispensary	Union	Other Hospitals	Private Practitioners	Observation						
Males ..	Treatment	88	23	334	55	196	304	66	57	74	10	16	13	0	12	70	137	16	63	138	21	46	23	130	37	1	37	122	82
Females	Diagnosis	63	23	65	93	145	99	24	34	34	3	6	4	0	6	27	24	9	40	79	14	55	16	64	8	0	27	38	22
Children	Contacts	21	51	23	292	260	127	10	4	7	0	11	30	0	4	49	46	7	100	186	28	126	5	4	25	7	97	37	59
Totals ..		172	97	422	440	601	530	100	95	115	13	33	47	0	22	146	207	32	203	403	63	227	44	198	70	8	161	197	163
			1131				1131				* 1416											1131							
																			* Total of "diseases" as distinct from total cases examined, <i>i.e.</i> , several patients had more than one form of disease present.										

\* Total of "diseases" as distinct from total cases examined, *i.e.*, several patients had more than one form of disease present.

TABLE B.—RESULT OF EXAMINATION OF CASES SENT FOR DIAGNOSIS, 1919.

	Pulmonary Tuberculosis			Tuberculosis of					Doubtful Tuber- culosis	No evidence of Tuber- culosis	Bron- chitis	Heart Lesions	Other Diseases
	Stage I.	Stage II.	Stage III.	Larynx	Bones and Joints	Glands	Abdomen	Other Organs					
Males ..	47	35	37	5	7	6	0	6	57	96	114	11	51
Females ..	7	11	5	1	1	1	0	2	12	14	9	5	11
Children ..	0	1	2	0	0	5	0	0	1	11	6	1	7

TABLE C.—RESULT OF EXAMINATION OF CONTACTS.

Males ..	3	1	0	1	3	0	0	1	3	39	8	2	10
Females ..	4	5	0	0	0	0	0	0	11	58	10	2	24
Children ..	3	0	1	0	0	17	0	1	35	164	27	7	83



TABLE D.—DISPENSARY RETURN, 1919.

Number of persons, including Contacts who were examined for the first time during the period from January 1st to December 31st, 1919, at or in connection with the Dispensary or Visiting Station, and were				Number of persons diagnosed to be suffering from Tuberculosis who were treated or supervised at or in connection with the Dispensary or Visiting Station during the period from January 1st to December 31st, 1919		Number of persons, who were under treatment, supervision, or observation at or in connection with the Dispensary or Visiting Station on December 31st, 1919	
Diagnosed as suffering from Tuberculosis	Diagnosed as <i>not</i> suffering from Tuberculosis	Undiagnosed and remaining under observation	Total number examined		Number of persons diagnosed to be suffering from Tuberculosis who were treated or supervised at or in connection with the Dispensary or Visiting Station during the period from January 1st to December 31st, 1919		Uninsured
			Insured	Uninsured	Insured	Uninsured	
1076	546	386	922	1086	248	709	336

TABLE E.—INSURED CASES TREATED IN 1919.

Residential . . . . .	1,387
Dispensary . . . . .	241
Domiciliary . . . . .	2,322
<hr/>	
Total . . . . .	3,950
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## ANALYSIS OF CASES TREATED.

TABLE I.—*Residential (Insured).*

	Total cases treated	Discharged from Institutions		Died	* Residential treatment discontinued in other cases	Still under Residential treatment on 1st January, 1920
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men . . . . .	1086	441	207	111	106	221
Women . . . . .	301	112	48	33	25	83
Totals . . . . .	1387	553	255	144	131	304

\* The figures in column (5) relate to cases as to the progress of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the insured persons themselves before the expiration of the period for which they were nominated for the treatment.

TABLE II.—*Residential (Uninsured).*

	Total cases treated	Discharged from Institutions		Died	* Residential treatment discontinued in other cases	Still under Residential treatment on 1st January, 1920
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men . . . . .	108	43	22	14	11	18
Women . . . . .	147	61	26	19	15	26
Children (under 16)	36	9	3	10	...	14
Totals . . . . .	291	113	51	43	26	58

\* The figures in column (5) relate to cases of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the persons themselves before the expiration of the period for which they were nominated for the treatment.

TABLE III.—*Dispensary (Insured).*

	Total cases treated	Discharged from Institution		Died	* Treatment discontinued in other cases	Still under treatment on 1st January, 1920
		Improved	Without Improvement			
	(1)	(2)	(3)	(4)	(5)	(6)
Men . . . .	161	59	44	1	13	44
Women . . . .	80	25	14	1	7	33
Totals . . . .	241	84	58	2	20	77 + 40 outstanding cases

\* The figures in column (5) relate to cases as to the progress of which no definite report is available for various reasons—*e.g.*, the withdrawal from the Institution of the insured persons themselves before the expiration of the period for which they were nominated for the treatment.

In addition to the above figures—

533 Males

148 Females—completed two weeks' Dispensary observation and treatment on leaving Institutions. Their condition was stationary during this period.

Total 681

TABLE IV.—*Dispensary (Uninsured).*

	Total cases treated	Discharged from Institutions		Died	Still under Residential treatment on 1st January, 1920
		Improved	Without Improvement		
	(1)	(2)	(3)	(4)	(5)
Men . . . . .	88	18	29	...	41
Women . . . . .	222	54	58	...	110
Children (under 16) . . . .	399	166	48	...	185
Totals . . . . .	709	238	135	...	336

## TABLES SHOWING AFTER HISTORY OF ARRESTED CASES.

1913.

*No Tubercle Bacilli Found.**Tubercle Bacilli Found.*

Stage	Sex	Number of Cases taken off S.B.	Number living at end of 1918	Lost sight of	Died	Sex	Number of Cases taken off S.B.	Number living at end of 1918	Lost sight of	Died
I.	M	1	1	—	—	M	—	—	—	—
	F	5	5	—	—	F	—	—	—	—
II.	M	2	1	—	1	M	1	1	—	—
	F	—	—	—	—	F	—	—	—	—
III.	M	—	—	—	—	M	—	—	—	—
	F	—	—	—	—	F	—	—	—	—
	M & F	8	7	—	1	M & F	1	1	—	—

1914.

I.	M	15	11	1	3	M	2	2	—	—
	F	13	10	2	1	F	3	2	1	—
II.	M	3	2	1	—	M	3	3	—	—
	F	2	2	—	—	F	—	—	—	—
III.	M	2	1	1	—	M	1	1	—	—
	F	—	—	—	—	F	1	1	—	—
	M & F	35	26	5	4	M & F	10	9	1	—

1915.

I.	M	19	16	2	1	M	15	12	1	2
	F	19	14	3	2	F	3	3	—	—
II.	M	16	13	2	1	M	2	—	1	1
	F	6	5	1	—	F	2	1	1	—
III.	M	1	1	—	—	M	3	2	—	1
	F	1	1	—	—	F	—	—	—	—
	M & F	62	50	8	4	M & F	25	18	3	4



## TABLES SHOWING AFTER HISTORY OF ARRESTED CASES—continued.

1916.

Stage	Sex	Number of Cases taken off S.B.	Number living at end of 1918	Lost sight of	Died	Sex	Number of Cases taken off S.B.	Number living at end of 1918	Lost sight of	Died
I.	M	16	14	—	2	M	10	7	1	2
	F	16	11	5	—	F	2	—	2	—
II.	M	4	4	—	—	M	6	2	3	1
	F	7	6	—	1	F	—	—	—	—
III.	M	1	1	—	—	M	1	1	—	—
	F	1	1	—	—	F	1	1	—	—
M & F		45	37	5	3	M & F	20	11	6	3

1917.

I.	M	19	17	2	—	M	9	6	2	1
	F	11	10	1	—	F	3	2	—	1
II.	M	14	14	—	—	M	4	4	—	—
	F	7	6	1	—	F	1	1	—	—
III.	M	2	2	—	—	M	3	3	—	—
	F	—	—	—	—	F	—	—	—	—
M & F		53	49	4	—	M & F	20	16	2	2

D. P. SUTHERLAND.

## VENEREAL DISEASES.

BY DR. W. ALLAN YOUNG.

The scheme for the treatment of venereal diseases which was adopted by the Council in April, 1917, was fully explained in the annual reports of 1917 and 1918.

## EXTENSIONS OF THE SCHEME DURING 1919.

On September 1st, 1919, another approved treatment centre was opened at St. Mary's Hospital, Whitworth Street, where female patients only are treated.

days and hours of the clinics at the six centres, along with the consulting medical officers, are shown below.

Institution .....	<p>Royal Infirmary, Oxford Road, Manchester</p> <p><b>Skin Clinic—</b>  Thursday ... 11-0 a.m. to 1-0 p.m.  Wednesday... 6-0 to 8-0 p.m.</p> <p><b>Genito-Urinary Clinic—</b>  Wednesday... 11-0 a.m. to 1-0 p.m.  Thursday ... 6-0 to 8-0 p.m.  Dr. F. E. Tylecote, M.D., M.R.C.P.  Mr. Wilson, L.R.C.P., F.R.C.S.</p> <p><b>Assistant Medical Officer:—</b>  J. Holker, M.Sc., M.B., Ch.B. (Vict.)</p>	<p>Lock Hospital, Duke Street, Liverpool Road, Manchester</p> <p><b>Skin Department—</b>  Monday ..... 12-0 noon  Thursday ... 7-0 p.m.</p> <p><b>Special Genito-Urinary Clinic—</b>  Tuesday ..... 12-0 noon  Friday ..... 7-0 p.m.  Dr. Wm. Dyson, M.D., Ch.B. (Vict.),  Robert Gibson, M.D., Ch.B. (Edin.),  Mr. J. Barlow Macalpin, M.B., Ch.B. (Vict.)</p> <p><b>Clinical Assistants—</b>  Dr. Wm. Ellwood, MB, Ch.B. (Aberdeen).  Dr. J. Ghosh, F.R.C.S.I., D.P.H. (Dublin)</p>	<p>Ancoats Hospital, Whit Street, Manchester</p> <p><b>Skin Diseases—</b>  Wednesday 11-30 a.m. to 1-0 p.m. (females).  Wednesday... 5-30 to 7-0 p.m. (males).</p> <p><b>Genito-Urinary Diseases—</b>  Wednesday... 11-30 a.m. to 1-0 p.m. (females.)  Wednesday... 5-30 to 7-0 p.m. (males.)  Dr. W. J. S. Reid, M.D.  Dr. Whitehead, MB, Ch.B.  Dr. Adelaide Renshaw, M.D.</p> <p><b>Assistant Medical Officer—</b>  Dr. F. Stone, M.B., Ch.B.</p>
Institution .....	<p>Hospital for Skin Diseases, Quay Street, Manchester</p> <p><b>Skin Clinic only—</b>  Daily except Sunday—  For men..... 9-0 to 10-0 a.m.  For women and children—  9-0 to 11-0 a.m.  G. H. Lancashire, M.R.C.S., L.R.C.P.  L. Savatard, I.S.A. (Lond.).  W. Dyson, M.D.  R. Gibson, M.D.</p>	<p>St. Mary's Hospital, Whitworth Street</p> <p><b>Females only—</b>  Monday .....  Tuesday .....  Thursday .....  Friday .....  Wednesday ..... 5-0 to 7-0 p.m.  Dr. F. H. Lacey, M.D</p>	<p>St. Mary's Hospital, Whitworth Street</p> <p><b>Females only—</b>  Monday .....  Tuesday .....  Thursday .....  Friday .....  Wednesday ..... 5-0 to 7-0 p.m.  Dr. F. H. Lacey, M.D</p>

Beds are reserved for venereal disease patients at all the treatment centres with the exception of St. Mary's Hospital.

The number of beds reserved at each centre is as follows:—

	Males.	Female
Manchester and Salford Lock Hospital .. ..	17	22
Manchester Royal Infirmary .. .. .	2	1
Manchester and Salford Skin Hospital .. ..	1	1
Ancoats Hospital .. .. .	1	1
	<hr/> 21	<hr/> 25

In January, 1919, the new extension of the Lock Hospital was opened. In it there is provision made for 17 male patients, with lavatory accommodation, douche and treatment rooms.

At Ancoats Hospital an extra genito-urinary clinic for males was opened on Saturdays evenings, and a medical officer was appointed in May to take charge of the male genito-urinary department.

In December, 1918, the Local Government Board issued V.D. Circular in which the urgent necessity for the provision of auxiliary centres in a venereal disease scheme was pointed out. These centres are to provide great facilities for the carrying out of treatment under skilled supervision, as in many instances the treatment prescribed by the medical officers at the appropriate treatment centres cannot be conveniently or adequately carried out at the patient's home.

In order to comply with the requirements of this circular, two proposals with plans and estimates, were submitted to the Council, one for the provision of an auxiliary centre for males at 3, Duke Street, and another for the provision of an auxiliary centre for females at Monsall Hospital, and were finally approved during the year.

The male auxiliary centre, owing to the Committee of the Lock Hospital who are the owners of 3, Duke Street, being unable to get possession of the house, has been abandoned *pro tem*.

The auxiliary centre for females was provided and equipped, and will have been opened before the end of the year had a suitable nurse been found.

During the second quarter of the year a douche room at the Lock Hospital was opened for the use of Lock Hospital patients at hours when the treatment clinics were not being held. The number availing themselves of this opportunity was considerable, the total attendances since the month of May being 6,099.

Two venereal disease clinics were opened during the year in connection with prematernity clinics at the Child Welfare Centres. These clinics are held at the Child Welfare Centres at Higher Ardwick and Lower Moss Lane respectively. One clinic weekly is held at each centre. Mothers and young children suffering from venereal diseases who may be discovered at any of the Child Welfare Centres are referred to one or other of the above centres where they are examined and treated.

In September, 1919, a report, pointing out the need for more active measures in connection with the prevention of venereal diseases, and recommending, as an experiment, the establishing of an Early Treatment Centre at an underground public urinal, was submitted to the Public Health Committee and approved.

The sanction of the Ministry of Health was obtained on condition that a report of the work of the centre, after three months' trial, be submitted to the Ministry.

This centre was opened in December, 1919, and it would appear that the results will justify the experiment.

#### SUMMARY OF THE WORK DONE UNDER THE VENEREAL DISEASE SCHEME DURING THE YEAR 1919.

##### *Approved Treatment Centres.*

The preparing and rendering to the Medical Officer of Health of quarterly returns of work done at the centres was carried out much better this year than in former years.

The information obtained from these returns is shown in the following tables.

The number of new cases presenting themselves at the centres was well maintained throughout the year.

At the Royal Infirmary there was a gradual increase from the first to the fourth quarter, but at the Ancoats, Skin, and Lock Hospitals the maximum was reached in the third quarter.

The number of new cases suffering from syphilis and gonorrhœa presenting themselves at the approved centres during the year was 2,711, and 1,992 respectively compared with 1894 and 908 during 1918. This shows an improvement in the proportion of the gonorrhœal patients presenting themselves for treatment on last year's figures, but there is still room for an increase in the gonorrhœal figures.

The Lock Hospital is the only centre where the number of new gonorrhœal patients exceeds the number of new patients suffering from syphilis, if we



exclude the 19 female patients at St. Mary's Hospital. This is interesting as it may be explained by the fact that the Lock Hospital is the only treatment centre which is adequately supplied with facilities for douching male cases of gonorrhœa. But the number of gonorrhœal patients at the Lock Hospital who cease to attend before their treatment is complete is disappointing and rather spoils this advantage of the Lock Hospital (see Table V.).

TABLE II.  
CLASSIFICATION ACCORDING TO SEX.—NEW CASES, YEAR 1919.  
*Syphilis and Gonorrhœa only.*

	MANCHESTER				OTHER DISTRICTS		
	Syphilis		Gonorrhœa		Syphilis		Gonorrhœa
	M.	F.	M.	F.	M.	F.	M.
Manchester Royal Infirmary ...	407	157	503	57	283	80	208
Ancoats Hospital .....	266	178	211	37	67	25	46
Hospital for Skin Diseases .....	194	150	45	5	208	177	33
Manchester and Salford Lock Hospital .....	245	71	462	23	137	51	253
St. Mary's Hospital .....	..	13	...	13	...	2	...
	1112	569	1251	135	695	335	540

In Table II. the relative proportions of male and female patients presenting themselves for treatment is shown. Among the syphilis patients the proportion of male to female patients is about 2 to 1 in Manchester cases, and in cases from outside districts.

The disproportion is most marked at the Lock Hospital.

The relative proportion is better at the Skin Hospital than at any institution in Manchester.

Among the gonorrhœal patients the proportion of males to females is about 12 to 1 for Manchester cases and about 9 to 1 in cases from outside districts.

This is distinctly bad, and is in spite of the fact that there was a specialist doctor in charge of the female clinic at Ancoats Hospital, and a lady assistant at the Lock Hospital.

It is hoped that, with St. Mary's Hospital and the two Child Welfare Centres dealing solely with female patients, a larger proportion of females may be under treatment next year.

In Table III. the total attendances of patients at all centres for the year 1919 is shown as being 55,779, and the number of doses of salvarsan substance administered as 13,248.

TABLE I.—NEW CASES.

SHOWING THE NUMBER OF NEW CASES PRESENTING THEMSELVES AT THE VENEREAL DISEASE CENTRES DURING THE YEAR 1919.

Period	Manchester Royal Infirmary				Ancoats Hospital				Manchester and Salford Hospital for Skin Diseases				Manchester and Salford Lock Hospital				St. Mary's Hospital, Whitworth Street				Total No. of New Cases at the five Centres each Quarter (All Cases)
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	* G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	
Quarter ending March 31st—																					
Manchester Cases .....	139	6	99	0	114	0	63	22	82	0	13	11	88	32	129	57	...	...	...	...	
All Cases .....	212	15	141	0	132	0	69	22	175	0	24	18	129	32	185	82	...	...	...	...	
	368				223				217				428								= 1,236
Quarter ending June 30th—																					
Manchester Cases .....	135	6	158	14	112	0	60	40	67	0	7	21	90	21	121	80	...	...	...	...	
All Cases .....	250	9	216	21	132	0	74	44	156	0	11	44	133	31	181	116	...	...	...	...	
	496				250				211				461								= 1,418
Quarter ending Sept. 30th—																					
Manchester Cases .....	133	2	151	16	99	1	85	45	110	2	19	21	74	20	125	67	...	...	...	...	
All Cases .....	236	2	213	27	134	1	115	56	208	5	26	36	121	31	210	107	...	...	...	...	
	478				306				275				469								= 1,528
Quarter ending Dec. 31st—																					
Manchester Cases .....	157	1	152	12	119	0	70	32	85	2	11	11	64	26	110	58	13	0	13	13	
All Cases ..	229	2	219	21	138	0	82	39	190	4	23	30	121	36	184	88	15	0	19	24	
	471				259				247				429				58				= 1,464
For year ending Dec. 31st, 19—																					
Manchester Cases .....	564	15	560	42	444	1	278	149	344	4	50	64	316	99	485	262	13	0	13	13	
All Cases .....	927	28	789	69	536	1	340	161	729	9	84	128	504	130	760	393	15	0	19	24	
	1,813				1,038				950				1,787				58				= 5,646

\* Transferred to other Centres.

† Sy. = Syphilis.

S.C. = Soft Chancre.

G. = Gonorrhœa.

Not V.D. = Not Venereal Disease.





TABLE III.

SHOWING THE TOTAL NUMBER OF ATTENDANCES AT THE VENEREAL DISEASE CENTRES AND THE PROPORTION OF THE NUMBER OF DOSES OF SALVARSAN SUBSTITUTE ADMINISTERED TO THE NUMBER OF SYPHILIS CASES TREATED DURING THE YEAR 1919.

Period	Manchester Royal Infirmary				Ancoats Hospital				Hospital for Skin Diseases				Manchester and Salford Lock Hospital				St. Mary's Hospital				Total No. of attendances and doses of Salvarsan Substitute at five Centres each quarter (all Cases)
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	* G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	
Quarter ending March 31st—																					
Manchester Cases.....	1755	8	363	0	556	0	207	28	2002	0	13	19	611	45	674	93	...	...	...	...	
All Cases .....	Salv. 633				Salv. 444				Salv. 215				Salv. 321				...	...	...	...	
	2628	26	525	0	666	0	229	40	4159	0	24	31	949	85	916	140	...	...	...	...	
	Salv. 980				Salv. 503				Salv. 488				Salv. 525				...	...	...	...	
Quarter ending June 30th—																					
Manchester Cases.....	1735	25	872	0	1743	0	806	63	1979	0	7	36	859	75	1096	166	...	...	...	...	= 10418
All Cases .....	Salv. 608				Salv. 659				Salv. 286				Salv. 487				...	...	...	...	Salv. 2496
	2826	36	1257	21	1931	0	860	74	4267	0	11	80	1414	121	1493	281	...	...	...	...	
	Salv. 1008				Salv. 754				Salv. 796				Salv. 876				...	...	...	...	
Quarter ending September 30th—																					
Manchester Cases.....	1868	24	901	27	1207	1	980	82	2185	2	19	43	928	58	835	144	...	...	...	...	= 14672
All Cases .....	Salv. 773				Salv. 666				Salv. 420				Salv. 476				...	...	...	...	Salv. 3434
	3075	24	1373	42	1489	1	1174	97	4465	5	26	80	1481	99	1223	248	...	...	...	...	
	Salv. 1253				Salv. 813				Salv. 842				Salv. 830				...	...	...	...	
Quarter ending December 31st—																					
Manchester Cases.....	1718	2	895	12	2603	0	774	78	2245	4	11	20	917	72	756	135	79	0	83	25	= 14902
All Cases .....	Salv. 715				Salv. 788				Salv. 285				Salv. 489				Salv. 46	0	124	39	Salv. 3738
	2689	2	1346	24	2793	0	913	94	4595	9	24	56	1505	102	1176	200	96	0	124	39	
	Salv. 1082				Salv. 910				Salv. 630				Salv. 895				Salv. 63				
Totals for the year ending December 31st, 1919—																					
All Cases .....	11218	88	4501	87	6879	1	3176	305	17486	14	85	247	5349	407	4808	869	96	0	124	39	= 15787
																					Salv. 3580
No. of doses of Salvarsan Substitute (All Cases) ...	4323	...	...	...	2980	...	...	...	2756	...	...	...	3126	...	...	...	63	...	...	...	= 55779
																					Salv. 13248

\* Transferred to other Centres.

† Sy.=Syphilis.

S.C.=Soft Chancre.

G.=Gonorrhœa.

Not V.D.=Not Venereal Disease.

‡ Salv.=Number of Doses of Salvarsan Substitutes given corresponding to the number of Attendances above.





TABLE IV.

NUMBER OF PATHOLOGICAL EXAMINATIONS MADE AT EACH CENTRE OR BY THE PATHOLOGIST TO THE CENTRE DURING 1919; ALSO PATHOLOGICAL EXAMINATIONS MADE BY PROFESSOR DEAN AT THE UNIVERSITY. TOTAL NUMBER OF ATTENDANCES OF PATIENTS AT EACH CENTRE ALSO SHOWN.

Period	Manchester Royal Infirmary				Ancoats Hospital				Hospital for Skin Diseases				Manchester and Salford Lock Hospital				St. Mary's Hospital			
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	* G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.
Quarter ending March 31st—																				
Attendances—All Cases.....	2628	26	525	0	666	0	229	40	4159	0	24	31	949	85	916	140	...	...	...	...
Pathological Examinations—	† W.	Sp.	G.		W.	Sp.	G.		W.	Sp.			W.	Sp.	G.		...	...	...	...
Centre .....	0	22	157	0	256	8	83	0	339	16	0	0	0	0	99	0	...	...	...	...
Professor Dean .....	352	0	0	0	0	0	0	0	0	0	0	0	315	0	1	0	...	...	...	...
Quarter ending June 30th—																				
Attendances—All Cases .....	2826	36	1257	21	1931	0	860	74	4267	0	11	80	1414	121	1493	281	...	...	...	...
Pathological Examinations—	W.	Sp.	G.		W.	Sp.	G.		W.	Sp.			W.	Sp.	G.		...	...	...	...
Centre .....	0	42	197	0	358	5	103	0	405	11	0	0	0	0	83	0	...	...	...	...
Professor Dean .....	444	0	0	0	0	0	0	0	0	0	0	0	445	0	0	0	...	...	...	...
Quarter ending Sept 30th—																				
Attendances—All Cases.....	3075	24	1373	42	1489	1	1174	97	4465	5	26	80	1481	99	1223	248	...	...	...	...
Pathological Examinations—	W.	Sp.	G.		W.	Sp.	G.		W.	Sp.			W.	Sp.	G.		...	...	...	...
Centre .....	0	56	177	0	222	0	90	0	475	16	0	0	0	1	112	0	...	...	...	...
Professor Dean .....	510	0	0	0	23	0	0	0	0	0	0	0	431	0	0	0	...	...	...	...
Quarter ending Dec. 31st—																				
Attendances—All Cases.....	2689	2	1346	24	2793	0	913	94	4595	9	24	56	1505	102	1176	200	96	0	124	39
Pathological Examinations—	W.	Sp.	G.		W.	Sp.	G.		W.	Sp.			W.	Sp.	G.		W.	Sp.	G.	
Centre .....	0	46	165	0	300	1	94	0	446	19	0	0	0	1	85	0	0	0	111	0
Professor Dean ....	468	0	0	0	0	0	0	0	0	0	0	0	368	0	0	0	29	0	0	0
Totals for Year 1919—																				
Attendances—All Cases.....	11218	88	4501	87	6879	1	3176	305	17486	14	85	247	5349	407	4808	869	96	0	124	39
Pathological Examinations—	W.	Sp.	G.		W.	Sp.	G.		W.	Sp.			W.	Sp.	G.		W.	Sp.	G.	
Centre .....	0	166	696	0	1136	14	370	0	1665	62	0	0	0	2	379	0	0	0	111	0
Professor Dean .....	1774	0	0	0	23	0	0	0	0	0	0	0	1559	0	1	0	29	0	0	0
																	Total ..	6186	244	1557

\* Transferred to other Centres.

† Sy.—Syphilis. S.C.—Soft Chancere. G.—Gonorrhoea. Not V.D.—Not Venereal Disease.

‡ W.=Wassermann reaction. Sp.=Spirochaeta Pallida. G.=Gonococci.



TABLE V.—TABLE SHOWING THE WORK DONE AT FIVE VENEREAL DISEASE CENTRES DURING THE YEAR 1919  
(TAKEN FROM QUARTERLY RETURNS).

	MANCHESTER ROYAL INFIRMARY				ANCOATS HOSPITAL				HOSPITAL FOR SKIN DISEASES				MANCHESTER AND SALFORD LOCK HOSPITAL				ST. MARY'S HOSPITAL			
†	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	* G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	Sy.	S.G.	G.	Not V.D.
New Cases—																				
Manchester Cases .....	564	15	560	42	444	1	279	149	344	4	50	64	316	99	485	262	13	0	13	13
All Cases .....	927	28	789	69	536	1	340	161	729	9	84	128	504	130	760	393	15	0	19	24
Cases discharged after completion of treatment—																				
Manchester Cases .....	158	7	72	0	135	0	48	0	44	4	0	0	81	17	70	0	0	0	0	0
All Cases .....	265	14	124	0	167	1	55	0	95	9	0	0	142	29	105	0	0	0	0	0
Cases ceasing attendance without completing treatment—																				
Manchester Cases .....	24	9	16	0	42	0	67	0	254	0	0	0	221	65	358	0	0	0	0	0
All Cases .....	73	14	30	0	84	0	90	0	381	0	0	0	318	70	531	0	0	0	0	0
Attendances at the Out-patient Clinic—																				
Manchester Cases .....	6976	59	3031	38	6109	1	2767	251	8411	6	50	118	3315	250	3361	538	79	0	83	25
All Cases .....	11218	88	4501	87	6879	1	3176	305	17486	14	85	247	5349	407	4508	869	96	0	124	39
In-patient Days—																				
Manchester Cases .....	55	0	0	0	94	0	102	0	163	0	0	0	1438	0	1133	0	0	0	0	0
All Cases .....	59	0	7	0	145	0	148	0	241	0	0	0	4709	0	4177	0	0	0	0	0
Doses of Salvarsan Substitutes given—																				
Manchester Cases .....	2729	0	0	0	2557	0	0	0	1206	0	0	0	1773	0	0	0	46	0	0	0
All Cases .....	4323	0	0	0	2980	0	0	0	2756	0	0	0	3126	0	0	0	63	0	0	0
Pathological Examinations made—																				
A. (Centre)—	Wass.	Spir.	Gon.		Wass.	Spir.	Gon.		Wass.	Spir.	Gon.		Wass.	Spir.	Gon.		Wass.	Spir.	Gon.	
Manchester Cases .....	0	101	490	0	1005	14	330	0	764	27	0	0	0	2	237	0	0	0	62	0
All Cases .....	0	166	696	0	1136	14	370	0	1665	62	0	0	0	2	379	0	0	0	111	0
B. (Professor Dean)—																				
Manchester Cases .....	1122	0	0	0	0	0	0	0	0	0	0	0	1004	0	1	0	19	0	0	0
All Cases .....	1774	0	0	0	23	0	0	0	0	0	0	0	1559	0	1	0	29	0	0	0

\* Transferred to other Treatment Centres. † Sy.—Syphilis. S.C.—Soft Chancre. G.—Gonorrhœa. Not V.D.—Not Venereal Disease.

† Includes Cases transferred to other Centres, etc., to continue treatment.





This is an increase of 19,333 attendances and 4,100 doses of salvarsan substitutes over the 1918 figures.

The large number of attendances at the Skin Hospital compared with the other centres is accounted for by the fact that there is a clinic at this centre daily except Sundays and that patients are kept under observation for a considerable period before being discharged.

This also accounts for the small number of cases discharged after a full course of treatment at this centre compared with numbers discharged at other centres (see Table V.).

Table IV. shows the number of pathological examinations made either at each centre or by the Pathologist of the Hospital, and also the pathological examinations made by Professor Dean at the University Laboratory. It also shows the number of attendances of patients at each centre for the year 1919.

The number of pathological examinations carried out during 1919 is almost double the number made in 1918.

In proportion to the attendances there are fewer microscopical examinations made at the Lock Hospital than at any of the other centres.

At the Royal Infirmary there is a trained microscopist in attendance at each clinic, so that at this institution the time of the clinical medical officers is not taken up in examining specimens, and the results of the examinations are available in a few minutes.

This method of examining microscopical specimens is also adopted at Ancoats Hospital.

Table V. is a general summary of the work done during the year 1919.

If we compare the figures in this table with the corresponding figures for 1918 it will be noticed that the new cases coming for treatment have increased more than 70 per cent. The increase is most marked at the Royal Infirmary (150 per cent.), well marked at Ancoats (70 per cent.), but not so well marked at the Skin Hospital (50 per cent.), or at the Lock Hospital (40 per cent.).

The number of cases discharged in 1919 after completion of treatment has also increased, but not to the same extent as the increase in new cases.

The number discharged at the Skin Hospital (95) shows a considerable increase over the figures for 1918 (6).

This latter figure was explained in last year's report to be due to the long period of observation which patients at this institution have to undergo before they are discharged.

The number of cases ceasing to attend at the centres before this treatment is completed is still very high, especially at the Lock Hospital. As mentioned in last year's report, this is a very serious matter for the patient as it renders subsequent treatment more difficult and often less effective.

Unfortunately there is no means of compelling these patients to attend treatment, and following them up by letter, as is done at certain institutions only partly successful, and cannot be resorted to at the Lock Hospital.

#### MEDICAL PRACTITIONERS AND THE SCHEME.

At the end of 1918 there were 27 medical practitioners in Manchester who were qualified to receive salvarsan substitutes free of cost.

During the year 1919 twelve practitioners were added to the list and four were removed, leaving 35 on the list on December 31st, 1919.

During the year 33 medical practitioners attended the clinics at the treatment centres, and of these 7 were granted certificates of proficiency in the modern methods of treatment of venereal diseases.

The quantity of salvarsan substitutes and the number of pathological outfits issued to medical practitioners is shown in the tables given below.

The quantity of salvarsan substitutes issued by the Medical Officer of Health during the year is seen in Table VI.

TABLE VI.

Quarter ending	Doses issued to			Total for each Quarter
	Medical Practitioners	H.M. Prison, Strangeways	Two Child Welfare Centres	
March 31st .. ..	570	222	—	792
June 30th .. ..	682	217	—	899
September 30th ..	679	350	40	1,069
December 31st .. ..	622	450	51	1,123
Total for 1919	2,553	1,239	91	3,883

This is 855 doses more than was issued during 1918.

The number of patients treated by private practitioners during 1919 was 4

For the collection of specimens for examination, "Outfits" were issued by the Medical Officer of Health as follows :—

- (a) Tubes, etc., to collect material for Wassermann reactions.
- (b) Glass slides, etc., to collect material for microscopical examination.

The number of "Outfits" issued during 1919 is shown in Table VII.

TABLE VII.

Quarter ending	Outfits issued to							Total for Quarter	
	Medical Practitioners		Institutions other than Approved Centres		Lock Hospital	Two Child Welfare Centres			
	Wass.	Micro.	Wass.	Micro.	Wass.	Wass.	Micro.	Wass.	Micro.
March 31st ..	179	30	2	—	358	—	—	539	30
June 30th ..	153	26	12	—	444	—	—	609	26
Sept. 30th ..	177	21	15	—	456	24	—	672	21
Dec. 31st ..	148	14	56	5	435	48	12	687	31
Total Wassermann outfits for 1919	657	—	85	—	1,693	72	—	2,507	—
Total microscopical outfits for 1919 ..	—	91	—	5	—	—	12	—	108

Total number of outfits issued during 1919 .. .. . 2,615

This is 1,312 outfits more than was issued during 1918.



## PATHOLOGICAL WORK DONE DURING 1919.

(a) At or in connection with approved centres. (See Table IV.)

(b) In connection with the "Outfits" issued by the Medical Officer of Health and forwarded to the University Laboratory during the year 1919 for examination. The results are as follows:—

TABLE VIII.

(1) *Wassermann Reaction.*

	Positive	Negative	Doubtful	Unsatisfactory Specimens	Total
Medical Practitioners .. ..	260	410	2	2	674
Institutions other than approved centres .. ..	4	21	0	0	25
Lock Hospital .. .. .	665	877	5	12	1,559
St. Mary's Hospital (3 months)	17	11	0	1	29
Two Maternity and Child Welfare Centres .. .. .	10	11	0	4	25
Total for the year 1919 .. .. .					2,312

(2) *Microscopical Examinations for Gonococci.*

	Positive	Negative	Doubtful	Unsatisfactory Specimens	Total
Medical Practitioners .. ..	13	48	0	1	62
Institutions other than approved centres .. ..	0	0	0	0	0
Two Maternity and Child Welfare Centres .. .. .	0	2	0	0	2
Total for the year 1919 .. .. .					64

(3) *Microscopical Examinations for Spirochata Pallida.*

	Positive	Negative	Doubtful	Unsatisfactory Specimens	Total
Medical Practitioners .. ..	0	0	0	0	0
Institutions other than approved centres .. ..	0	1	0	0	1
Two Maternity and Child Welfare Centres .. .. .	0	0	0	0	0
Total for the year 1919 .. .. .					1

## REPORT OF WORK DONE AT THE TWO PRE-MATERNITY CLINICS.

*Child Welfare Centres.*

45, Higher Ardwick and 40-42, Lower Moss Lane.

## NEW CASES.

IX.—SHOWING THE NUMBER OF NEW CASES PRESENTING THEMSELVES AT EACH CENTRE DURING THE YEAR 1919.

Period	45, Higher Ardwick, 1st September, 1919 to 31st December, 1919				40-42, Lower Moss Lane, 28th August, 1919, to 31st December, 1919				Total for the Year
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.	
ber to December, 1919	4	0	1	15	8	0	0	2	=30

X.—SHOWING THE TOTAL NUMBER OF ATTENDANCES AT EACH CENTRE, AND THE PROPORTION OF THE NUMBER OF DOSES OF SALVARSAN SUBSTITUTE ADMINISTERED TO THE NUMBER OF SYPHILIS CASES TREATED DURING THE YEAR 1919.

	45, Higher Ardwick				40-42, Lower Moss Lane				Total Attend- ances for the Year	Doses of Salvarsan Administered during the Year
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.		
ber cem- 1919.	19	0	3	25	24	0	0	2	= 73	25

TABLE XI.—SHOWING THE NUMBER OF PATHOLOGICAL EXAMINATIONS MADE AT CENTRE, AND BY PROFESSOR DEAN AT THE UNIVERSITY, ALSO THE TOTAL NUMBER OF PATIENTS AT EACH CENTRE DURING THE YEAR 1919.

Period	45, Higher Ardwick				40-42, Lower Moss Lane				Total Examinations		
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.	Not V.D.			
September to December, 1919 :—											
Attendances—all cases	19	0	3	25	24	0	0	2	0	0	0
Pathological Examinations .. .. .	‡W	Sp.	G.	0	W	Sp.	G.	0	W	Sp.	G.
Centre .. .. .	0	0	0	0	0	0	0	0	0	0	0
Professor Dean ..	15	0	1	0	10	0	1	0	25	0	2

TABLE XII.—SHOWING THE WORK DONE AT EACH CENTRE DURING THE YEAR 1919.

	45, Higher Ardwick				40-42, Lower Moss Lane		
	Sy.	S.C.	G.	Not V.D.	Sy.	S.C.	G.
New cases .. .. .	4	0	1	15	8	0	0
Cases discharged after completion of treatment .. .. .	0	0	0	0	0	0	0
Cases ceasing attendance without completing treatment .. .. .	0	0	0	0	†3	0	0
Doses of Salvarsan Substitutes given	15	0	0	0	10	0	0
Pathological Examinations .. .. .	‡W	Sp.	G.	0	W	Sp.	G.
(a) Centre .. .. .	0	0	0	0	0	0	0
(b) Professor Dean .. .. .	15	0	1	0	10	0	1

Salv. = Number of doses of Salvarsan Substitutes given, corresponding to the number of attendances above.

Sy. = Syphilis. S.C. = Soft Chancre. G. = Gonorrhœa. Not V.D. = Not Venereal Disease.

† Transfers, ‡W = Wassermann Reaction. Sp. = Spirochæta Pallida. G. = Gonorrhœa.

## PUBLICITY :—

*Work of the Local Branch of the National Council for Combating Venereal Diseases.*

A report giving an account of the work carried out by the branch during 1919 was published in March of this year.

The work of the Council during the year consisted chiefly in extending its propaganda work by means of lectures.

Of the lectures given in Manchester and Salford, 83 were given in works and 19 to social organisations.

In addition to the lectures given in Manchester and Salford, 50 have been given on behalf of the Lancashire County Council, 9 for the Cheshire County Council, and 2 for other County Councils.

The list of medical lecturers consists of 5 medical men and 3 medical women. There are also 4 lay speakers who deliver addresses on this subject.

The lectures and addresses continue to be well attended, and are greatly appreciated.

*Finance.*

A statement prepared by the City Treasurer shows that the total net expenditure on the scheme for the year 1919 was as follows:—

	£	s.	d.
Manchester University, Department of Pathology .	267	14	4
Ancoats Hospital . . . . .	2,288	18	5
Hospital for Skin Diseases . . . . .	2,784	5	11
Manchester and Salford Lock Hospital . . . . .	3,529	4	7
Manchester Royal Infirmary . . . . .	3,889	11	8
St. Mary's Hospitals . . . . .	354	11	3
Apportionable expenditure . . . . .	£13,114	6	2
St. Mary's Hospital, Compensation . . . . .	43	4	0
Salvarsan Substitutes issued by Medical Officer of Health . . . . .	711	7	10
Maternity and Child Welfare Centres . . . . .	203	11	8
Practitioners' Expenses . . . . .	18	0	6
Auxiliary Centres . . . . .	1	9	4
Early Treatment Centre . . . . .	7	18	1
Publicity—Contribution to Funds of N.C.C.V.D. . . . .	400	0	0
Advertising, etc. . . . .	173	4	8
Non-apportionable expenditure . . . . .	£1,558	16	1
Total expenditure for year . . . . .	£14,673	2	3



Of this total £5,093 8s. 1d. has been apportioned among other local authorities and the balance of £9,579 14s. 2d. falls to Manchester.

The adequacy or otherwise of the provisions made under the Venereal Disease Scheme in Manchester may be considered under the following heads:—

1. Treatment centres or clinics.
2. Auxiliary centres.
3. Pre-Maternity Clinics.
4. Facilities for the examination of pathological specimens.

#### *Treatment Centres.*

The five treatment centres are fairly well distributed over the City, and at one of the centres clinics are held every day of the week. At two other centres clinics are held on five days of the week, and at the remaining centres, as the need arises, extra clinics can be arranged.

The facilities for treating syphilis in both male and female patients are adequate.

The facilities at the Lock Hospital for dealing with cases of gonorrhœa are adequate, but at the Royal Infirmary, and especially at Ancoats Hospital, there is poor accommodation for the douching of male patients. At these institutions the difficulty is got over by training the patients in the use of the syringe, a procedure which, although otherwise less satisfactory than douching, has the advantage that patients, who might erroneously treat themselves at home, are trained in the proper use of the syringe, thereby enabling them to carry out treatment frequently without having to repair to a centre. The objections to the use of the syringe are that adequate care is not taken to keep it in a surgically clean condition, and that when being used the proper technique is not carried out.

Female patients who wish to be examined and treated by lady doctors may avail themselves of this privilege at Ancoats Hospital and the Lock Hospital.

#### *Auxiliary Centres.*

As explained already, the establishing of the male auxiliary centre has had to be abandoned for the time being. This is unfortunate, as the facilities for douching are inadequate at two of the three centres at which male gonorrhœal patients are treated, and only at one centre is the douche-room open at hours other than clinic hours.

At this centre (the Lock Hospital) a male auxiliary centre could be opened if the female in-patients were removed to another building. This is contemplated at present, but the proposal is being held up owing to the difficulty in finding a suitable house for the female in-patients.

The auxiliary centre for females will be opened on the 15th of April, 1920.

#### *Pre-Maternity Clinics.*

The Pre-Maternity Clinics at which venereal diseases are dealt with have been open since September, and the number of attendances is on the increase, but there is ample provision at present for immediate needs, and extra clinics can be arranged when this becomes necessary.

#### *Facilities for Pathological Examinations.*

There is ample provision made for the examination of pathological specimens at the University Pathological Department, but at the Lock Hospital a trained microscopist in attendance during the clinics would be desirable.

No hospital provision has so far been made in the scheme for females suffering from venereal diseases who are about to be confined.

Without some such provision it is difficult to deal with those cases, as doctors and especially midwives, do not care to attend them, and very frequently the patients strongly resent the idea of going into the Union Infirmary.

A scheme which provided for this type of case was drawn up early in the year, but was considered too costly.

#### *Early Treatment Centres.*

The Early Treatment Centre, which was opened in December, appears to be very successful, judged by the number of attendances, and it is intended, with the sanction of the Ministry of Health, to open another centre during the current year.

To the above may be added a statement of the venereal disease work done at Crumpsall Infirmary under the Poor Law Venereal Diseases Scheme, also a summary of the venereal disease work done in His Majesty's Prison, Rangeways, Manchester.

#### *Extract from a Report on the Work Done at the Venereal Department at the Crumpsall Infirmary (Manchester Union) during the year ended March, 1920.*

The Medical Officer of the Crumpsall Infirmary reports that the work at the Venereal Department has again increased during the year.

The increase is due to the fact that 18 other Unions have made agreements with the Manchester Board of Guardians for the treatment of their cases at Crumpsall, and that people are becoming aware of the importance of having these diseases treated.

## ADMISSIONS:—

*Total Admission.*

	Syphilis	Soft Chancre	Gonorrhœa
Males .. .. .	205	4	75
Females .. .. .	305	0	137

*Admissions of Patients from other Unions (included in above figures).*

	Syphilis	Soft Chancre	Gonorrhœa
Males .. .. .	76	2	21
Females .. .. .	139	0	27

There were 73 births, 12 still-births, and 5 abortions in this department of the Infirmary during the year.

*Persons Treated with Approved Salvarsan Substitutes.*

	Manchester Union	Other Unions
Total number—Males .. .. .	108	67
Females .. .. .	139	122

Total number of injections of Salvarsan substitutes has risen from 873 in 1917 and 1,224 in 1918 to 1,657 in 1919.

*Pathological Examinations.*

(a) The number of Wassermann examinations carried out at the Manchester University totalled 617.

(b) Examinations carried out at the Venereal Department of the Infirmary—  
 For detection of Spirochætes .. 0  
 For detection of Gonococci .. 212

## STILL-BIRTHS AND ABORTIONS.

*Table showing the number of Still-births and Abortions.*

	Syphilis	Gonorrhœa
Mothers—Still-births .. .. .	7	5
Abortions .. .. .	3	2

With the exception of two of the above cases the mothers had had no treatment prior to delivery.

# SUMMARY OF WORK DONE IN CONNECTION WITH VENEREAL DISEASE IN HIS MAJESTY'S PRISON, STRANGWAYS, MANCHESTER, DURING THE YEAR 1919.

The number of persons treated for syphilis during the year 1919 was—

Males.	Females.	Total.
108	82	190

The number of doses of Salvarsan substitutes administered was 1415.

The number of persons treated for gonorrhœa during the year was—

Males.	Females.	Total.
79	27	106

Seventy per cent. of the above patients were stated to have come from Manchester.

No action was taken in Manchester during 1919 under the Venereal Diseases Act, 1917, but a case which was brought to the notice of the Medical Officer of Health of Manchester was referred by him to the Medical Officer of Health of another authority, and it is believed that a prosecution resulted.

Steps have now been taken to obtain information regarding the treatment of patients suffering from venereal diseases by unqualified persons.

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## SMALL-POX.

By DR. W. ST. C. McCLURE.

Between July 22nd and August 31st 14 cases of small-pox occurred in the City. This figure includes three cases which remained undiscovered until they had ceased to be infectious.

The outbreak began by the almost simultaneous occurrence of three cases, one in each of the districts of Bradford, Ancoats, and Openshaw, the dates of rash being July 23rd, 26th, and 22nd.

The Bradford case, a man of 47 years, vaccinated in infancy, began to be ill on July 20th, was notified on July 24th, and on that day was removed to Clayton Hospital. No infection spread from this case, which remained the only one in the district.

The Ancoats case, an unvaccinated child, aged 1 year, who began to be ill on July 24th, was at first notified as suffering from measles, but on July 30th, the medical attendant becoming suspicious, Dr. McClure saw the child, and found it to be suffering from small-pox. The child was at once removed to hospital, and a search made for other cases in the district, without result. Thirty days passed without any further case being discovered, and observation was



relaxed. However, on August 30th an anonymous letter received at the Public Health Office led to the discovery of a new case, a child of 10 years, who began to be ill on August 26th. Protection by vaccination had previously been refused by this family. The occurrence of this case, 30 days after removal of the first one to hospital, meant that there had been an intermediate case which had been overlooked. Renewed investigation revealed the fact that this child's mother had recently had an attack of small-pox. She had not lived at her own house for some months, but frequently met her children in the street. She had therefore escaped observation. The fact that her own child became ill drew her for the first time to her home, where she was seen by Dr. McClure on August 31st. Examination revealed signs of a fairly recent eruption on the hands and legs. After much persuasion she admitted being very ill and having a rash about July 9th. Her child began to be ill on August 26th and received her infection about August 12th, that is, 34 days after the onset in the mother. It is possible that the mother remained infectious for 34 days and infected only her child, with whom she came into intimate contact, but there must remain some doubt. No other source of infection was found.

That the mother infected the first Ancoats case, a child æt  $1\frac{1}{2}$  whose onset was on July 24th, is more likely, and there is more than a possibility that this woman was the source of infection of the three known primary cases. She is said to have nursed the Ancoats child at the time when she herself was ill; she frequented the same public-house as the Bradford case. Whether she came into contact with the Openshaw primary case is unknown, the investigation here being incomplete, owing to the patient's death before any history of his previous movements could be obtained.

#### THE OPENSHAW CASE.

The Openshaw case was that of a man, 58 years of age, who commenced to be ill on July 17th, died on July 24th, and was buried on July 28th. The certified cause of death was influenza, nephritis, heart failure, and not until his wife became ill with small-pox on August 3rd was the true nature of his illness suspected. There is no doubt that he died from hæmorrhagic small-pox, and in this the medical practitioner who attended him agrees.

No precautions had been taken, and, though a vaccination crusade was at once inaugurated amongst contacts and neighbours, it was too late to check the development of infection in those who had been in close contact with him during his illness.

Almost at once seven cases came to light—three of his own family, two amongst neighbours who had helped to nurse him, and two hairdressers, in whose case infection was carried by a third party, the hairdresser's assistant, who had shaved the dead man on July 26th. He himself, being well re-vaccinated,

escaped infection, but carried it back to the shop, where he infected the master barber and a lather boy, also, as discovered later, one of his customers. The assistant who shaved the corpse did not disinfect the appliances used, nor did he wash his hands until some time after the occurrence.

Thus the second batch of cases in Openshaw consisted of eight people, seven of whom were discovered immediately and removed to hospital. No infection spread from these. The eighth case remained undiscovered for 22 days, until, in fact, he had infected his wife, who developed the disease on August 27th. This man was a regular customer at the barber's shop, and it seems likely that he was infected in the same way as the master barber and the lather boy. He gave no history of illness except that he had a cold on August 6th, denying that he had observed any eruption. He was examined, however, during the investigation into the origin of his wife's illness, and the opinion was formed that he had probably had an attack of small-pox within the last two months.

No further spread of infection was caused by this man nor by his wife, and the epidemic came to an end when she was removed to hospital on September 1st.

#### INTRODUCTION OF SMALLPOX INTO MANCHESTER.

The way in which smallpox originated in the City is obscure. It is possible that the disease was introduced by a demobilised soldier from abroad. There is the known case of a soldier arriving at his home in Salford from the East on June 9th suffering from smallpox, to whom five cases in Salford were traced. All known contacts of this man were kept under observation, but there must have been many others of whom we were not cognisant. It may be that the woman already referred to was the immediate source of the Manchester cases, herself contracting the disease from an imported case which remained undiscovered, but the chain of evidence is incomplete.

#### MEASURES OF PRECAUTION TAKEN.

A report by Dr. McClure upon all the measures taken to combat the outbreak was made to the Hospitals Sub-Committee on October 15th, and a copy was sent to the Ministry of Health. Detailed accounts of the intensive investigations made by Inspectors Priestley, Lord, and Higginbotham are filed in the office.

#### VACCINATION.

Vaccination of contacts was for the most part done by the public vaccinators. Under the Public Health (Smallpox Prevention) Regulations, 1917, two primary and 16 re-vaccinations were performed by the Medical Officer of Health or his deputy.

TABLE SHOWING DATE OF RASH AND REMOVAL TO HOSPITAL AND THE VACCINAL STATE OF SMALLPOX CASES, THE NUMBERS PREFIXED BEING THOSE IN THE SMALLPOX REGISTER.

No.	Sex	Age	Date of Rash	Notified	Removed to Hospital	Vaccination State and Remarks
6	M	47	July 23	July 24	July 24	Infancy, 2 marks, $1\frac{1}{2}$ sq. in.
7	M	$1\frac{10}{12}$	" 26	" 30	" 30	Unvaccinated.
8	F	55	Aug. 3	Aug. 4	Aug. 4	Infancy, 3 marks, $\frac{3}{4}$ sq. in.
9	F	30	" 5	" 6	" 6	Infancy, 2 marks, 1 sq. in.
10	M	25	" 7	" 6	" 6	Infancy, 2 marks, 1 sq. in.
11	M	37	" 6	" 7	" 7	Infancy, 3 marks, $1\frac{3}{4}$ sq. in.
12	F	49	" 8	" 8	" 8	Infancy, 4 marks, $\frac{3}{4}$ sq. in.
13	F	28	" 8	" 8	" 8	Infancy, 3 marks, $1\frac{1}{4}$ sq. in.
14	M	13	" 9	" 10	" 10	Infancy, 4 marks, $\frac{3}{4}$ sq. in.
15	F	10	" 28	" 30	" 30	Unvaccinated.
16	F	46	" 31	Sept. 1	Sept. 1	Infancy, 1 mark, $\frac{1}{4}$ sq. in.
A	M	58	—	—	—	Died July 24th, and buried; nature of illness was suspected.
B	M	47	Aug. 6	—	—	Overlooked case. Vaccinated in infancy, 4 marks, $\frac{3}{4}$ sq. in.
C	F	30	July 9	—	—	Infancy, 3 marks, $1\frac{3}{4}$ sq. in. Overlooked case.

#### MORTALITY AND TYPE OF DISEASE.

No. A died. Numbers 6 and 16 were confluent cases. The remainder were discrete and comparatively mild attacks.

#### OTHER CASES TREATED AT CLAYTON VALE HOSPITAL.

In addition to those referred to in this report, 9 cases of smallpox were received during the year into Clayton Hospital from districts outside the Manchester area.

### SUPERVISION OF CONTACTS.

Apart from the supervision of persons who had been in contact with known cases of smallpox in this country, information was received either from the Ministry of Health or from port medical officers relating to 235 persons landing in England who had been in contact with cases abroad, or had come from places where smallpox was prevalent and who gave as their destination an address in Manchester. Except in a few instances where the address given was a wrong one, these contacts were kept under observation at their own homes for 16 days, and none developed the disease.

### NOTIFICATION OF CHICKENPOX.

Chickenpox became notifiable for six months from September 15th, 1919. During the year 1,153 cases were visited by district inspectors, who obtained history of the illness and the vaccinal condition of each case reported. Any case arousing suspicion was visited by the assistant to the Medical Officer of Health.

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## ANTHRAX AND SHAVING BRUSHES.

BY DR. W. ST. C. MCCLURE.

During the year it became known that shaving brushes infected with anthrax were being distributed throughout the country. Deaths of persons from anthrax were traced to the use of these brushes in London and elsewhere, but happily no one in Manchester is known to have contracted the disease, though a considerable number of infected brushes were sent into and sold within the City.

The first intimation that shaving brushes suspected of being infected with anthrax were being sent to Manchester was received on November 13th from the Medical Officer of Health for the Borough of Holborn. In all 3,794 suspected brushes were received by Manchester dealers, who in their turn sold them to other wholesale firms and to retailers, not only in Manchester but in other districts. In one instance a quantity had already been shipped to a firm resident in Madeira, and it is satisfactory to note that these were fully returned to Manchester and destroyed.

The brushes implicated were of three patterns, all of Japanese make, and tails of each pattern are filed in the Public Health Office for reference.

Samples were submitted to Professor Delépine, and his examination showed that brushes of each pattern were infected by the bacillus of anthrax and, in addition, by a slender sporing bacillus which was also pathogenic to guinea pigs.



Immediately on becoming aware of the existence of suspected brushes in the City, Dr. McClure visited the firms concerned and, by their ready co-operation, further sale of the brushes was stopped.

Of the 3,794 brushes, 2,662 were distributed in Manchester, and of the 2,490 were recovered, 172 remaining untraced. 1,132 were distributed in other districts, and of these 795 were returned to the Manchester firms, the remainder being dealt with directly by other health authorities, to whom notification of the facts had been sent.

The brushes recovered were destroyed at the Public Health Office or returned by the firms to the original suppliers, in which event the Medical Officer of Health of the district in which the supplier resided was informed, so that the further steps required might be taken by him. In the case of one batch of 175 brushes, these were disinfected under the supervision of Dr. McClure and returned to the dealer.

From time to time in recent years shaving brushes made in Japan and imported into this country have proved to be infected with anthrax. In the Annual Report for 1916 an account is given of 140 gross of such brushes consigned to Manchester in that year. On other occasions also infected brushes in lesser quantity have been discovered in the City. Danger from this source has now largely been removed by the Anthrax Prevention Order, 1920, which prohibits the importation directly or indirectly into this country of shaving brushes manufactured in the Empire of Japan.

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## WORK DONE IN CONNECTION WITH SUSPECTED CASES OF RABIES AND IN CASES OF DOG BITE DURING 1919.

BY DR. W. ALLAN YOUNG.

Towards the end of 1918 many cases of rabies were detected in the county of Devon and Cornwall. In the early months of 1919 the disease showed signs of spreading in the south, and, as 15 school children in Manchester had been bitten by a dog without apparent cause, the Medical Officer of Health asked the Chief Constable to forward in future particulars of any case of dog-bite brought to the notice of the police. This was done, and all persons bitten were without delay investigated by the staff of the Medical Office of Health.

In all instances when the police reported that the circumstances of the case were suspicious, and when the head of the animal concerned had been taken to the laboratory of the Board of Agriculture and Fisheries, a report of

Medical investigation of the person or persons bitten was immediately sent to the Local Government Board, who were in close touch with the veterinary officers of the Board of Agriculture.

In the event of any specimens sent to the laboratory proving suspicious, the Local Government Board immediately communicated with the Medical Officer of Health, so that the person or persons bitten should receive treatment without delay.

On April 1st, 1919, the " Rabies Order of 1919," which revoked and replaced the " Rabies Order of 1897," was issued by the Board of Agriculture. This new Order considerably extended the powers conferred by the Order of 1897, and for the first time it was required that the Medical Officer of Health should be informed of all persons bitten by a rabid or suspected dog, so that he might be in a position to advise regarding treatment.

A memorandum on the procedure recommended to be followed in the event of persons being bitten by dogs suspected or ascertained to be rabid was issued to the Local Government Board. Copies of this memorandum were sent to all Medical Practitioners within the City.

According to this memorandum the only places in England where the best treatment could be obtained were London and Plymouth, and, when necessary, patients were to be sent to these places for treatment at the expense of the local authority.

In June of 1919 the Local Government Board issued a revised memorandum in which further particulars were given regarding treatment. The number of treatment centres was increased to six, including Manchester.

During the year 1919 the Medical Officer of Health received 52 reports of animals which were either suspected to be suffering from rabies or had bitten someone.

These reports have been separated into two groups :—

1. Cases in which the local investigations proved sufficiently suspicious to warrant the head of the animal being sent to the laboratory of the Board of Agriculture for examination.

2. Cases in which the animals had bitten someone or had been destroyed because of their ferocious nature but in which there was no suspicion of rabies.

In the first group specimens from 23 dogs and 3 cats were submitted for examination. Seven of the dogs and one cat had bitten no one but had acted otherwise suspiciously. Sixteen of the dogs and two cats had bitten 37 persons, and in these cases full reports were sent to the Local Government Board.

In only one instance was the preliminary report from the Board so suspicious that they advised the child should be sent to London for treatment.

This was done on May 28th, but after the commencement of treatment subsequent report proved that the dog had not suffered from rabies, and the patient was brought back to Manchester.

In the second group 24 dogs and 3 cats had bitten 27 people. Beyond careful investigation of the circumstances in each case, no action was taken.

All cases of dog or cat bite which were reported have completely recovered.

No case of rabies was discovered in Manchester during 1919.

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## MATERNITY AND CHILD WELFARE.

One of the health visitors has assigned as her special duty to attend verminous children under school age. This subject has been discussed in former reports. But it may be well to restate that it is useless to deal with verminous school children unless the whole family is attended to. At present time our cleansing station for such cases is practically absorbed with school children, and the results are necessarily most imperfect and temporary. Verminous conditions are very widespread, and besides the health which they are liable to produce now, may at any time prove disastrous. It is difficult to see why compulsory powers are granted to school authorities and not to other authorities. The health of school children is not more precious than the health of workers. Powers are needed to deal in a comprehensive manner with these diseases. Infestation with lice should be made a notifiable disease and powers given to the Public Health Authority to make examination of each member of a family in which a case has occurred. The Public Health Authority should be required to set forth the action which the family must take to rid itself of vermin, and to serve a notice on such families of the steps to be taken. For this purpose every Public Health Authority should be required to provide a cleansing station or cleansing station containing baths, an efficient disinfecting machine for clothing, undressing and dressing rooms. Should it be found that the action taken by the family has not resulted, within a reasonable time, in ridding it of vermin, the Public Health Authority should be empowered to carry out any measures which in its judgment are necessary for the purpose. In certain obstinate cases the Public Health Authority should be empowered to arrange with a private



practitioner for a course of treatment, or, if the family is unable to afford the expense of treatment, for a course of treatment, at the expense of the public, either by a private practitioner or at a hospital for skin diseases.

Where the family is severely infested, no member should be allowed to engage in work indoors until in the opinion of the Public Health Authority a worker may safely do so without risk of infecting other workers. Every person proposing to engage in indoor work should be examined and a certificate given that he is free from infestation by lice before he can commence work. Where any person engaged in indoor work is known to be infested with lice he should be required to abstain from such work until in the opinion of the Public Health Authority he is in no danger of communicating the disease. Where any person engaged in indoor work is a member of a family severely infested with lice he should be required by the Public Health Authority to submit to personal examination, and, if found to be infested, be treated as above.

A return should be made every month to the Public Health Authority by public institutions, including schools, hospitals and homes, of any fresh cases of infestation coming to the knowledge of any officer of such institution, and the action taken to cure such infestation. For this service one shilling per month should be paid in the case of voluntary institutions.

The above evil is so widespread and must be so injurious to health that special measures are required to deal with it in the interests of scholars and the people.

These sections of the work are immediately under Dr. Douglas Drummond.

The Inspection of Midwives, and administration under the Midwives Act, 1902 and 1918. (See report, p. 168 *et seq.*)

*General Arrangements made for Attending to the Health of Expectant and Lying Mothers.*—In the Maternity and Child Welfare Scheme approved by the Ministry of Health in general is a proposed arrangement for the establishment of ten prematernity centres. This section of the work has not yet received the explicit approval of the Ministry, and the work is suspended for that reason. General instructions, however, are issued to mothers attending the Child Welfare centres. Otherwise, as yet, no special work is done in this section of the work other than that carried out by Dr. Drummond in her capacity of executive officer under the Midwives Act. Instructions are also, no doubt, given by the medical officers of St. Mary's Hospital when primiparae, and women who have previously had difficult confinements, attend at Whitworth Street. Presumably, such instructions are given at the gynæcological clinics at St. Mary's Hospital and the Northern Hospital. What instructions are given otherwise



are given by medical practitioners in cases where difficulty is anticipated. But I do not gather that, as yet, primiparae are generally examined when a medical attendant is engaged. It is very desirable that the prematernity centres should receive the approval of the Ministry\*.

*The health of children under 5.—*

For the work of the health visitors, see p. 172.

Consultation and treatment centres, inserted p. 180.

The investigation of still-births, p. 171.

The investigation of infant deaths, p. 174.

Distribution of milk, p. 180.

Co-ordination with the School Medical Service will begin in 1921

*Maternity Homes and Hospitals.*—There is but one maternity hospital in Manchester, viz., St. Mary's Hospital, which admits only complicated cases (beds, 55). There are two maternity homes. (a) Mrs. Macalpine's Maternity Home at Fallowfield. Only confinements are admitted where the child is illegitimate. The average duration of stay is three months, and the girls are usually taken in a month before confinement. They must have previously borne a good character and be free from venereal or other infectious disease. They are domestic servants, office girls, and mill girls of the better class. After their three months' stay here they are discharged, or occasionally sent to the Oakhill Home of the Salvation Army, which receives mothers and their children or to the Church of England Home in Salford. The children's fate is various, some being adopted, others staying in the girls' home, others placed out with foster mothers. The fate of the girl is followed up from the institution as far as practicable. The number of beds here is 18 or 19. It is well situated. The arrangements are generally good, and the experience of the home is very good as regards disease. There are three nurses, of whom two are midwives.

(b) The other home is the Manchester Maternity Home, in High Street. The number of beds here is 20. A report on this home has been asked for and sent to the Ministry.

In addition to the work done inside St. Mary's Hospital, a large number of cases, normal and otherwise, are attended at their own homes from the hospital which is a training school for midwives and medical students.

There can be no doubt that maternity homes into which working-class mothers can go for normal confinements are much needed. The intention is that these shall be staffed, as regards midwives, by the Public Health

\* This approval is now given.

committee, and that the lying-in women shall be attended by their own doctors when they so desire. There is also needed a limited provision for others known to be suffering from venereal disease. It would also be good if to such provision were added beds for puerperal fever. Such a maternity institution should preferably be established near St. Mary's Hospital, to which institution complicated cases would be drafted. It would also have the benefit of the experience of the St. Mary's staff.

Institutions for receiving mothers and their children are of recent formation, and the following are particulars relating to them :—

3. Incidence of Puerperal Fever	(see p. 168, 233)
„ Ophthalmia Neonatorum ( „	183)
„ Measles ( „	188)
„ Whooping Cough ( „	191)
„ Epidemic Diarrhœa ( „	193)
„ Poliomyelitis ( „	108)

For methods adopted see the above references.

As regards puerperal fever, the mortality is too high, and can only be reduced by a most careful education of medical men and midwives in antiseptic. Ophthalmia Neonatorum has lately increased, as shown by the figures given herewith. There is good reason to believe that we have not obtained all the facts from the Royal Eye Hospital, but particulars are communicated at the instance of Dr. Wharton showing serious results from Ophthalmia Neonatorum. He ascribes these failures to the fact that the instructions given to the midwives do not allow the use by them of nitrate of silver at the birth of the child. It is but just to say that his predecessors, who advised the Midwives' Supervising Committee when the methods to be adopted were fixed, strongly advocated the use of nitrate of silver. But the committee generally were unwilling to trust the midwives practising at that time to use this material in the eyes. It is, in my opinion, time that the change was made, all due care being given to the instruction of the midwives and the necessary solutions being supplied to them. The matter is at present under consideration.

As regards measles, there can be no doubt at all of the improvement effected in making this disease notifiable, the central administration being confided to the Health Visitors. It is unfortunate that some eager spirits have offended medical attendants and stretched their instructions. It is most desirable that whooping cough should also be made notifiable. The Manchester Local Board, which makes measles and whooping cough notifiable to head teachers, and ultimately to the Medical Officer of Health is of very little use for administrative purposes, owing to the delay and partial character of notification.

Epidemic diarrhoea has much diminished in Manchester. This is due, in my opinion, chiefly to the activity shown in getting stable manure removed within a week of deposit, but also to the replacement of pail-closets and middens by water-closets. It is, however, an imperfect gain unless the utmost vigilance is shown in the removal of horse manure and other organic matter.

## REPORT ON THE WORK OF THE MIDWIVES DEPARTMENT FOR THE YEAR 1919.

BY DR. M. A. C. DOUGLAS DRUMMOND. \*

The number of midwives who gave notice of their intention to practice in Manchester during 1919 was 140; of these, 27 reside without the City. In the course of the year two midwives died, three removed from the area, and one gave up work.

From returns made by the midwives, 7,811 births were attended by them. The total registered births in the City numbered 13,932. It will be seen from these figures that about 56 per cent. were attended by midwives, as against 52 per cent. in 1918.

### INSPECTION OF MIDWIVES.

270 visits were paid, and on 181 occasions midwives were interviewed at the Public Health Office. In 4 instances the houses were found dirty, and 6 bags were unsatisfactory and incomplete. Five registers were found to be not entered up to date. In 1918 the corresponding figures were 401 visits, 17 interviews, 7 dirty houses, 12 unsatisfactory bags, and 6 incomplete registers.

### PUERPERAL INFECTION.

During the year 1919, against an average of 140 cases in the fourteen years 1905-18, 159 cases of puerperal infection were notified, of which 62 occurred after abortion or premature labour. Of the abortions, 46 were at the second or third months of gestation, 4 at the fourth month, 2 at the fifth, 2 at the sixth, 3 at the seventh, and 5 during the eighth month of pregnancy.

The total fatal cases numbered 35, of which 13 were premature labours, against an average of 22 in the fourteen years 1905-18.

The attack-rate per 1,000 births was 11.41, against 5.11 in 1918, whilst the case fatality per cent. was 22.0, against 22.0 the average for the years 1905-1918.

The mortality from puerperal fever per 1,000 births was 2.44, against an average of 1.34 in the preceding 10 years.

\* Dr. Drummond now has supervision of the whole of the Maternity and Child Welfare work, under the Medical Officer of Health.

The usual figures prepared for Table C are as follows :—

	Number of Cases attended by					
	Midwives		Doctors		Midwife and Doctor	
	Attacks	Deaths	Attacks	Deaths	Attacks	Deaths
1919	40	11	71	19	13	5

Out of 159 cases notified, 24 patients were nursed at home, and 17 recovered; 7 cases were removed to Monsall Hospital and 95 recovered, the case mortality being 15·8. The remaining 18 cases were treated in other institutions, and recovered.

Subsequent visits have been paid to 121 women who recovered, and with exception of seven all were in good health.

The particulars as to the character of the labour and the results for 1919 are :—

	No. of Cases	Recovery	Death
Normal full term labour . . . . .	47	37	10
Abnormal full term labour . . . . .	38	28	10
Miscarriage or Premature . . . . .	62	49	13
Institution cases, not ascertained . . . .	12	10	2

#### SUSPENSION OF MIDWIVES.

Ninety-seven suspensions of midwives from their work occurred, chiefly on account of their having been in attendance on cases of puerperal infection or other septic conditions.

#### RECORDS OF CALLING IN MEDICAL AID.

During the year 1919 the number of medical records received was 2,671, as compared with 2,075 in the previous year. The numbers under the various reasons given for having advised medical aid correspond to those in previous years (see table herewith).



NUMBER OF CASES OCCURRING IN 1919 IN WHICH THE MIDWIFE ADVISED THAT A REGISTERED MEDICAL PRACTITIONER SHOULD BE SENT FOR (RULE E 19). ALSO THE NUMBER OF APPLICATIONS FROM MEDICAL PRACTITIONERS FOR PAYMENT OF THEIR FEES FOR ATTENDING CERTAIN EMERGENCY CASES.

Period	Medical aid called in on account of the following causes, as stated by the Midwife	Total	* Application for fees
Pregnancy	{ Abortions, miscarriages .....	26	5
	{ Deformed pelvis .....	8	2
	{ Loss of blood .....	4	..
	{ Other unusual features of pregnancy .....	189	2
Labour	Presentations { Head—Malpositions .....	23	1
	{    In primiparae .....	8	1
	{ Breech { In multiparae .....	0	..
	{    Para not stated .....	18	10
	{ Transverse .....	25	12
	{ Funis .....	20	11
	{ Unable to make out .....	12	..
	Tedious labour { Forceps used .....	9	171
	{ No record as to forceps .....	374	25
	Placenta..... { Retained .....	38	17
	{ Adherent .....	28	16
	Membranes retained .....	29	15
	Rupture of perineum .....	533	161
	Hæmorrhage.. { Ante partum .....	41	11
	{ Post partum .....	25	11
	{ Hæmorrhage—3rd stage .....	1	..
	Convulsions .....	9	1
	Complications .....	10	7
	Premature labour .....	8	1
Lying-in	Abdominal swellings .....	0	..
	Foul-smelling discharges .....	1	4
	Secondary post-partum hæmorrhage .....	2	..
	Rigor .....	3	1
	Rise of temperature above 100·4° F. ....	84	15
	Unusual swelling of breasts .....	9	1
	Progress unsatisfactory or complications .....	124	18
Newly-born Child	Injuries received during birth .....	3	1
	Obvious malformations .....	47	3
	Tongue-tied .....	10	3
	Feebleness of Child .....	144	24
	Inflammation of eyes and eyelids .....	540	49
	Skin eruption .....	43	6
	Illness from prematurity .....	127	20
	Malignant jaundice .....	24	3
	Inflammation about the umbilicus .....	10	..
	Unspecified or complications .....	40	4
	Convulsions .....	22	1
TOTALS .....		2,671	633

\* These applications have been classified according to the conditions requiring treatment found by the medical practitioner.

# MIDWIVES ACT, 1918—MEDICAL ASSISTANCE TO MIDWIFE IN CASE OF EMERGENCY.

Arising out of the summoning of medical aid, 633 applications were received from medical practitioners for payment of their fees. These were paid in 2 cases. In 17 instances the people paid the doctors themselves, 6 applications were withdrawn, and in 8 others the conditions were not fulfilled. The amount paid in 1918 was £225. The total sum paid in the year ending March 31st, 1920, was £775 18s. 6d., and of this £263 17s. was recovered from those people who were in a position to pay. In 240 cases the income was below the scale.

Nine applications for fees were received from midwives for attendance on confinements of the wives and widows of soldiers and sailors, and of other men in need of assistance, as a result of the War. Eight fees were paid, the total amount being £5 2s. 6d.

## STILL-BIRTHS.

The total number of still-births reported to the Office during the year was 442, as against 448 in the previous year. Out of the 442 still-births, 239 occurred in the practice of doctors (these are ascertained from the Cemeteries' returns) and 203 in the practice of midwives. The percentage of still-born children was 3.1; in 1918 it was 3.4.

The summary of causes to which it seemed reasonable to credit the still-births shows the principal numbers to be:—

Definite history of ill-health of the mother	.. .. .	45
Accident to the mother before confinement	.. .. .	30
Shock	.. .. .	19
Breech presentations, full time	.. .. .	10
Worry	.. .. .	6
Insufficient help at delivery	.. .. .	10

The still-birth rate was highest in St. George's, Hulme, Ancoats, and Fenshaw.

## DEATHS OF NEW-BORN CHILDREN.

Notifications of 34 deaths of new-born children before a medical practitioner could be obtained were received and investigated. In 15 instances inquests were held. In 3 cases "Want of attention at birth" was the verdict, and in 1 "Accidental suffocation." In 19 cases the City Coroner did not consider it necessary to hold inquests.

## DEATH OF THE MOTHER.

No cases of death of the mother before a medical practitioner could be obtained were notified during the year.

## CHARGES OF MALPRACTICE, NEGLIGENCE, OR MISCONDUCT.

The Midwives Supervising Committee did not find it necessary to make any reports under this heading to the Central Midwives Board.

## WORK OF THE SPECIAL NURSES.

The work done by the two Nurses during the year 1919 has been tabulated and is as follows :—

Still-births investigated .. .. .	260
Deaths of newly-born infants investigated .. .. .	35
Cases of Puerperal Fever nursed at home .. .. .	20
Nursing visits paid to 20 cases and to patients with raised temperatures .. .. .	31
Old Puerperal Fever cases investigated to ascertain subsequent histories .. .. .	10
New Puerperal Fever cases investigated to ascertain histories.. ..	13
Nursing visits paid to cases of Mammary Abscess .. .. .	16
"    "    "    "    Phlebitis .. .. .	7
"    "    "    "    Septic Skin Affections in Mothers ..	1
"    "    "    "    Houses Infected with Measles ..	1
"    "    "    "    "    "    "    "    Scarlet Fever ..	0
Number of cases of Skin affection in newly-born infants .. ..	5
Nursing visits paid to these infants .. .. .	52
Number of nursing visits paid to cases of Spina Bifida.. .. .	10
"    "    "    "    cases of Septic Umbilicus.. ..	17
Special investigation visits concerning medical records, including visits paid to doctors .. .. .	30
Nursing visits paid for midwives during suspension and when unable to obtain a qualified substitute .. .. .	3
	<hr/> 2,25

## STATEMENT OF WORK DONE BY THE HEALTH VISITORS.

By MISS SEED.

During the year 1919 the Infant Life Preservation Sub-Committee met ten times.

The staff at the end of the year consisted of the Superintendent, the Assistant Superintendent, six Female Clerks, a Cleansing Nurse, and 45 Health Visitors 39 of whom were certificated Nurses, and received salaries ranging from 40s. to 47s. per week, plus a war bonus. Of the remaining six, one visitor was

ken on to the staff when the district she had been previously working was included in the City area ; the five others were taken over from the Ladies' Public Health Society by the Corporation in 1908. Their salaries varied from 25s. to 35s. 6d., together with the war bonus.

Eight of the Health Visitors resigned and ten new appointments were made, which included the appointment of four additional Health Visitors. There were also two resignations and two new appointments on the clerical staff.

In addition to the Infant work, with its annually increasing burden from January 1st, 1916, and of which it is impossible until the end of 1920 to estimate what is a fair share for each Health Visitor to undertake ; and in addition to the ordinary routine investigation of cases of Measles, Whooping Cough, Scabies, and Vermin, the second and third epidemics of Influenza in Manchester made serious demands upon the time of the Health Visitors, and considerably interfered with the regularity of their ordinary duties.

An acute shortage of Nurses occurred during the spring epidemic, and it became necessary for the Medical Officer of Health to ask for volunteers amongst the Health Visitors. Greatly as this was to be deplored from a child welfare point of view, mention must be made here of the generous response on the part of the Health Visitors to this call for assistance and of the valuable help they thus rendered, particularly after the notification of Influenzal Pneumonia came into being. It may be noted that 5,636 Influenza visits were paid. These included visits to cases of Influenzal Pneumonia.

After the epidemic had subsided it was decided that the Health Visitors should visit only notified cases of Pneumonia occurring on their districts and which were under five years of age ; the remainder were to be investigated by the Sanitary Inspectors allocated to the investigation of Infectious Diseases. This arrangement continued until October, when the entire work of visiting Pneumonia cases irrespective of age or district was transferred to the Health Visitors' Department.

A report of the work done in connection with Pneumonia appears elsewhere. (See page 103.)

Table 1 shows the work done throughout the year in each district worked by the Health Visitors.

Table 2 compares the work of 1919 with that done in the three preceding years.

It will be noted in Table 1 that four further districts requiring each an additional Health Visitor were worked during the year. These districts are,



unfortunately, not the breaking of new ground. Much as we desired to open new districts, it was necessary first to subdivide four of the larger districts which were already being worked, and where the work was heaviest in every sense of the word. The districts thus divided were those of Chorlton-upon-Medlock North, St. George's Central, Monsall, and Ardwick East. There still remain several districts which are too large for good work to be done there, and further subdivisions are inevitable.

### *Notification of Births Act.*

The jump in the birth-rate which took place during the later months of the year manifested itself in the excess of the figures for 1919 relating to notification and registration of births over those for 1917 and 1918.

The total number of notifications received under the Notification of Births Act was 13,470, of which 3,456 were made by doctors, 9,732 by midwives, and 282 by parents. Out of the total of 13,470, those occurring in the districts covered by the Health Visitors numbered 9,230. The registered births within the City numbered 13,932, and 10,502 were referred to the Health Visitors.

In addition to these, the Health Visitors "discovered" on their respective districts 128 infants who were born during the current year, 70 infants who were born during 1918, 80 infants born during 1917, and 30 infants born during 1916, thus adding a total of 308 new cases to be visited, to those already distributed to them through the Notification of Births Act. These cases were either removals into Manchester from other towns or removals from (at present) unvisited areas of the City. It is to be observed that the practice of notification of the removal of an infant from one local authority to another has greatly increased during the year.

### *Deaths.*

1,015 deaths of infants under one year of age occurred in the districts covered by the Health Visitors during 1919. Of these, 124 lived less than a day, 143 died within a week, 171 died within a month, 157 died under three months, 144 under six months old, 134 under nine months old, and the remaining 100 died between the ages of nine months and one year.

In 207 cases death was due to Bronchitis and Pneumonia, in 241 cases to Prematurity, in 97 cases to Enteritis, in 112 cases to Debility and Marasmus, in 55 cases to Convulsions, in 23 cases to Accidental Deaths, including three due to want of attention at birth; 21 cases died from Tuberculosis, 19 from Syphilis, 27 from Influenzal Pneumonia, 23 from Measles, 9 from Whooping Cough, and the remaining 181 deaths were due to various other causes.

Table 3 shows the distribution of deaths according to districts.

### *Summer Diarrhoea.*

From July 15th to September 30th, 1919, 174 cases of Diarrhoea were visited. Of these, 23 occurred during the last two weeks in July, 108 during the month of August, and 43 during the month of September. These figures are greatly below those given for 1917 and 1918 when 636 and 313 cases were visited respectively.

In Ancoats 17 cases were visited, 13 in London Road, 17 in St. George's (including Monsall district), 17 in Ardwick, 39 in Hulme, 1 in Beswick, 19 in Radford, 3 in West Gorton, 7 in Gorton, 5 in Openshaw, 3 in Miles Platting, 1 in Newton Heath, 2 in Blackley, and 1 in Harpurhey.

100 of the total cases were children under 12 months, and of these 24 were having breast feeding, 22 mixed feeding, and 54 entirely artificial feeding at the onset of the illness.

53 cases died, though not all of the deaths were ascribed to Diarrhoea. 32 deaths were those of children under one year of age, and of these 32 had not attained their fourth month.

Table 4 shows a comparison of the work done in 1919 under this heading with that done in the two preceding years.

### *Child Welfare Centres.*

The close co-operation between the Health Visitors and the Infant Welfare Centres continued on very much the same lines as those mentioned in preceding reports.

The Health Visitors had their periodical attendances at the Centres, though the stress of other work somewhat interfered with the frequency of these.

The Medical Officers of the Centres gave their lecture each week to the Health Visitors, and, as in previous years, all case-sheets of infants who were not making satisfactory progress were submitted to them, as also the Health Visitors' reports on infants attending the Centres. A list of the new attendances at each of the Infant Welfare Centres was sent to the Medical Officer of Health each week for the information of the Health Visitors.

### *The Manchester Babies' Hospital.*

The number of Corporation beds in the Manchester Babies' Hospital still remained at 18, and again the inadequacy of the accommodation resulted not infrequently in a long waiting list.

During 1919, 102 applications were received for admission to the hospital. Of these, 17 were cancelled for the following various reasons: 7 were admitted to other hospitals, 2 died before beds were available, 5 so much improved whilst

on the waiting list that hospital treatment was no longer necessary, and 3 instances the parents at the last minute were unwilling to allow their child to go into hospital.

Nine applicants were not able to be admitted until 1920 owing to lack of hospital space.

Of the remaining 76 cases who were admitted to the hospital,

7 cases were sent in from the centre at 72, Rosamond Street West, C.-on-					
7	„	„	„	„	226, Hyde Road, Gorton.
8	„	„	„	„	45, Higher Ardwick.
12	„	„	„	„	Willert Street, Collyhurst.
9	„	„	„	„	Mill Street, Ancoats.
22	„	„	„	„	1, Manipur Street, Openshaw.
5	„	„	„	„	153, Cheetham Hill Rd, Cheetham.
3	„	„	„	„	Oldham Road, Newton.
1 case was sent	„	„	„	„	40, Lower Moss Lane, Hulme.
1	„	„	„	„	Abbey Hey, Gorton.
1	„	„	„	„	St. Aloysius, Ardwick.

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The various conditions from which the children were notified to be suffering were :—

	Cases
Malnutrition .. .. .	11
Atrophy .. .. .	8
Dyspepsia .. .. .	12
Debility .. .. .	10
Prematurity .. .. .	2
Marasmus .. .. .	16
Bronchitis .. .. .	2
Gastritis .. .. .	1
Gastro-Enteritis .. .. .	6
Diarrhoea and Vomiting .. ..	4
Enteritis .. .. .	3
Vomiting .. .. .	1
Total .. .. .	76

The ages of the infants on admission were :—

		Cases
Under 1 month	..	3
Aged 1 „	..	8
„ 2 months	..	16
„ 3 „	..	16
„ 4 „	..	11
„ 5 „	..	3
„ 6 „	..	8
„ 7 „	..	3
„ 8 „	..	5
„ 9 „	..	2
„ 10 „	..	1
		<hr/>
		76

The length of stay in hospital varied, as follows :—

5 remained in hospital for one week.

12	„	„	rather less than one month.
12	„	„	for one month.
19	„	„	„ two months.
10	„	„	„ three „
8	„	„	„ four „
5	„	„	„ five „
4	„	„	„ six „
1	„	„	„ eight „
			<hr/>
			76

Seventeen of the cases died in hospital, and four have died since discharge. Only about 40 per cent. of the mothers attended the Infant Welfare Centres as regularly as they should after receiving their infants home again from hospital. The Health Visitors visited the children promptly as soon as the notification of discharge was received, and in these cases attendance at a Centre was always strongly urged. From the latest reports on the hospital cases only 23 were said to be in a satisfactory condition and 16 were unsatisfactory. Two cases still remain in hospital at the time of writing this report, two others have removed out of Manchester, four are inmates of other hospitals; and the remaining eight cases came from districts unworked by the Health Visitors, and circumstances have prevented their being properly followed up.

#### *Monsall Hospital Infant Ward.*

Cases sent into the Special Infant Ward in Monsall Hospital are kept in for longer periods than those in the Babies' Hospital. Consequently the number of cases admitted is much lower; a fact also determined by the smaller number of beds, namely ten, at our disposal. Fifteen applications were received, but



only nine children were admitted during the year, six of the applications being cancelled. In four cases the mothers were unwilling at the last to allow the children to go into hospital; one child died and one was over age.

3	cases	were	sent	in	from	the	centre	at	72,	Rosamond	Street	West,	C.-on-M.
2	"	"	"	"	"	"	"	"	230,	Hyde	Road,	West	Gorton
2	"	"	"	"	"	"	"	"	Mill	Street,	Ancoats.		
1	case	was	sent	"	"	"	"	"	153,	Cheetham	Hill	Rd,	Cheetha
1	"	"	"	"	"	"	"	"	42,	Lower	Moss	Lane,	Hulme.
<hr/>													
9													
<hr/>													

All the children ranged between the ages of one and two years. Seven children were suffering from Malnutrition, one from Malnutrition and Rickets and one from Debility and Wasting.

\*2 children were detained in hospital for 7 months.

3	"	"	"	8	"
*2	"	"	"	10	"
1	child	was	"	10	"
*1	"	"	"	11	"

\* These five children are still in hospital.

Of the four cases discharged, three when last revisited were in a satisfactory condition and one was unsatisfactory.

### *Measles, German Measles, and Whooping Cough.*

8,420 cases of Measles, 186 of German Measles, and 1,000 cases of Whooping Cough were visited, and kept under supervision until satisfactory. The distribution of these diseases throughout the City and the mortality therefrom together with a report showing how the various age groups have been affected by Measles, are to be found elsewhere. (See pages 188 *et seq.*, also 191 *et seq.*)

The difficulties in the way of carrying out this branch of the work are many. In numerous instances it seems almost impossible for the mothers to grasp how serious may be the consequences of a case of Measles or Whooping Cough being carelessly nursed. The rules for the isolation of a patient are more frequently honoured in the breach than in the observance. Poverty, of course, is a strong factor here in the earlier stages of the disease, but in mild cases and in the day of convalescence, with very few exceptions, most child patients are to be found playing in the streets. Even the penalty set forth in Sub-section 2 of Section 5 of our Local Act, which deals with this matter, is quite ineffectual in convincing the mothers of how serious a wrong they are perpetrating. Prosecutions are not events to be entered into lightly, but one wonders sometimes what the value of a successful test case might not be provided the results were well advertised.

The grant of £200 allowed during 1917 and 1918 in connection with these cases has been continued throughout 1919, and, as before, proved a very great boon in providing milk for infected children up to five years of age in households where the family income fell below the standard scale.

Throughout the year 286 applications for milk were granted, and 3,554 pints of milk were given.

At the end of 1918 about 890 cwt. of coal, part of the gift of coal of December, 1916, still remained. During 1919, 290 applications for coal were sanctioned and tickets issued to the extent of 513 cwt. of coal. 110 of these applications, representing 197 cwt. of coal, were granted in respect of Influenza.

As in 1917 and 1918, however, on collecting the tickets from the various "Highways" yards, where the coal has been stored, only 262 tickets were found to have been used, so that, instead of 513 cwt., only 464 cwt. of coal have been used.

Amount of coal received December, 1916	.. .. .	Tons.
		250
" " distributed during 1917	.. . 123	} 228 $\frac{3}{4}$
" " " " 1918	.. 82 $\frac{1}{2}$	
" " " " 1919	.. .. 23 $\frac{1}{4}$	
Amount of coal in hand for 1920	.. .. .	<u>21<math>\frac{1}{4}</math></u>

As in preceding years we have endeavoured to use these grants of milk and coal as a means towards the better nursing of young patients at home, and have insisted upon the necessary instructions given by the Health Visitors being carried out, as far as means would permit, wherever relief has been given.

#### *Verminous Work.*

The number of notifications received from the Education Authorities in respect of verminous cases has considerably decreased, only 178 having been sent in this year as compared with 909 in 1918.

213 notifications were received as regards cases of scabies, and 67 further cases were found by the Health Visitors. In this particular instance the word "case" means households affected.

Each year the number of children sent to us by the Education Authorities for cleansing becomes fewer and fewer, until during 1919 the Cleansing Station was in use for this purpose on four-and-a-half days only. It was, however, used by us on six other days for the cleansing of 26 special cases where the verminous conditions were beyond cleansing by home methods.

63 children in all were sent to the Cleansing Station by the Education Authorities throughout the year. Of these, 7 had body vermin only, 15 had head vermin only, and 41 had body and head vermin. Four children were suffering from Impetigo.

Legal proceedings were taken by the Education Department against parents on account of the persistent verminous condition of their children in 10 instances, and 3 fines of 10s. each, 1 of 7s. 6d., and 4 of 5s. each imposed. Two cases were adjourned. The Cleansing Nurse was required to give evidence in each case.

Some cases of neglect, both verminous and from other sections of the law, were reported to the N.S.P.C.C. 21 such cases were referred throughout the year, and visits from the Society's Officers have been helpful even without resorting to a prosecution.

We are again indebted to the Lord Mayor, through whose kindness we received a supply of Charity Forms, which enabled us to recommend a number of necessitous cases for gifts of sheets, quilts, or flannel. We also received a very large number of flannel garments for infants, and for these our best thanks are due to Councillor Miss Ashton, who kindly arranged for their being made. These garments were of very great assistance to the Health Visitors, as they not only relieved cases of distress but were also able to demonstrate to the mothers the right type of garment a child should wear.

A summary of the work done by the two Health Visitors under the supervision of the Ladies' Society for visiting the Jewish poor, and of the Medical Officer of Health is given in the following Tables:—

*Work of the Jewish Health Visitors during the year 1919.*

DISTRICT	HOUSE-TO-HOUSE INSPECTIONS								RE-INSPECTIONS		
	Number of Visits	Overcrowdings	Disrepair	Dirty	Cellars Dirty or Dilapidated	Yards Defective	W.C.'s Defective	Referred to Sanitary Dept.	Number	Defects Remedied	New Complaints Referred
Red Bank.. ..	516	9	515	8	..	5	..	313	1127	427	385
Strangeways ..	545	3	479	9	51	110	72	81	400	127	78
TOTAL ..	1061	12	994	17	51	115	72	394	1527	554	463

*Limewashing.*

DISTRICT	Bed-rooms	Kitchens	Yards	W.C.'s	Cellars	Coal Places	Ceilings	Stair-cases	Sc
Red Bank ..	50	93	53	51	8	2	169	34	
Strangeways ..	..	..	1	1	..	..	..	..	
TOTAL ..	50	93	54	52	8	2	169	34	

The district of Strangeways was without a Health Visitor until June, which accounts for the smallness of the number of visits.



TABLE 1.—HEALTH VISITORS' WORK, 1919—DETAILED STATEMENT.

\* District subdivided January, 1919—One additional Health Visitor.

† District subdivided April, 1920—One additional Health Visitor.

† Districts subdivided April, 1919—One additional Health Visitor.





TABLE 3.

DISTRICT	Number of Health Visitors working in the District	Number of Deaths in Families visited among Children under one year of age	CAUSES OF DEATH—1919											
			Bronchitis and Pneumonia	Prematurity	Debility and Marasmus	Enteritis	Convulsions	Tuberculosis	Syphilis	Accidental Deaths, including Want of Attention at Birth	Influenza and Pneumonia	Measles	Whooping Cough	Other Causes
Ancoats .. .. .	5	107	23	28	11	8	5	2	2	7	3	3	..	15
Central—London Road .. .. .	1	26	8	4	2	3	1	2	..	1	2	..	..	3
St. George's, including Monsall West .. .. .	5	140	28	39	16	12	4	3	1	3	6	6	1	21
Chorlton-upon-Medlock .. .. .	4	108	13	23	12	19	7	3	3	3	3	2	..	20
Hulme and Deansgate .. .. .	6	190	42	42	21	24	10	4	3	1	3	1	2	37
Ardwick .. .. .	4	83	17	23	10	1	2	2	4	1	2	1	4	16
Openshaw .. .. .	1	21	6	4	..	..	5	..	1	1	..	..	..	4
West Gorton, including Longsight .. .. .	2	46	13	8	4	5	1	2	2	2	..	1	..	8
Gorton .. .. .	3	67	10	20	7	3	7	1	..	1	3	1	..	14
Beswick .. .. .	1	30	8	11	5	1	1	..	..	1	..	..	..	3
Newton, including Miles Platting and Monsall East..	4	86	24	14	9	7	4	1	1	1	3	4	1	17
Bradford .. .. .	1	27	5	4	5	5	2	..	1	..	..	1	..	4
Harpurhey .. .. .	1	23	4	8	2	2	2	..	..	..	1	..	1	3
Blackley .. .. .	1	17	2	4	1	2	2	1	..	..	..	..	..	5
Special Districts .. .. .	2	44	4	9	7	5	2	..	1	1	1	3	..	11
TOTAL .. .. .	41	1,015	207	241	112	97	55	21	19	23	27	23	9	181



TABLE 4.—SUMMER DIARRHŒA. CASES VISITED BY THE HEALTH VISITORS.

Year	Total Number of Cases visited	Number of Cases occurring during the last two weeks of July	Number of Cases occurring during August	Number of Cases occurring during September	Ancoats	London Road	St. George's and Monsall	Ardwick	Hulme	Beswick	Bradford	West Gorton	Gorton	Openshaw	Miles Platting	Newton	Blackley	Harpurhey	Special Districts	Number affected under 1 year of age	Method of Feeding on date of onset of Illness			Total Number of Deaths	Number of Deaths under 1 year of age
																					Breast	Mixed	Artificial		
1917 ..	636	115	335	166	116	18	131	43	90	34	39	32	12	18	11	15	..	..	..	325	68	64	194	129	90
1918 ..	313	51	179	83	42	16	28	32	77	11	7	5	29	19	10	12	1	..	1	175	43	31	101	42	28
1919 ..	174	23	108	43	17	13	17	17	39	1	19	3	7	5	3	6	2	1	..	100	24	22	54	53	42*

\* 320 of these deaths were those of children who had not yet attained their fourth month.





**STATEMENT OF WORK DONE AT THE CHILD WELFARE CENTRES DURING THE YEAR 1919.**  
(PREPARED FROM THE RETURNS RECEIVED FROM THE CENTRES.)

		NUMBER OF BABIES WEIGHED													NUMBER OF NEW CASES													CONSULTATIONS													SPECIALISTS' CONSULTATIONS					TREATMENT CASES						
		72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	375, Abbey Hey Lane, Gorton	686, Oldham Road, Newton Heath	Jubilee Schools, Harpurhey	St. Aloysius	Holy Name	Total	72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	375, Abbey Hey Lane, Gorton	686, Oldham Road, Newton Heath	Jubilee Schools, Harpurhey	St. Aloysius	Holy Name	Total	72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	375, Abbey Hey Lane, Gorton	686, Oldham Road, Newton Heath	Jubilee Schools, Harpurhey	St. Aloysius	Holy Name	Total	72, Rosamond Street West	1, Manipur Street	Total	72, Rosamond Street West	1, Manipur Street	42, Lower Moss Lane, Hulme	45, Higher Ardwick	Total	
5 weeks ending	31st January ...	576	1235	274	573	805	455	406	388	117	157	135	...	...	5121	47	101	28	62	57	39	32	38	16	25	28	...	...	473	321	664	192	389	491	339	310	233	74	119	104	...	...	3236	75	143	218	382	431	218	109	1140	
4	28th February ...	523	1154	277	553	795	426	270	412	103	262	150	...	...	4925	46	84	20	54	75	43	19	38	21	44	27	...	...	471	259	627	161	412	487	262	210	223	75	194	104	66	...	...	2976	112	120	241	328	392	177	85	982
4	28th March ...	528	1101	294	587	845	392	276	457	115	295	126	...	...	5016	49	97	30	69	96	58	23	47	16	39	21	...	...	471	261	605	182	423	536	290	219	245	71	218	94	...	...	3144	108	138	246	245	332	99	102	778	
5	26th April ...	410	943	168	450	716	383	251	397	123	272	131	...	...	4253	42	72	11	45	66	27	23	32	13	27	17	...	...	375	200	511	124	368	487	266	168	215	71	202	99	...	...	2711	82	93	175	153	260	75	106	594	
4	31st May ...	740	1472	310	702	1187	676	397	623	231	396	186	20	77	7026	60	100	20	63	91	68	25	43	24	57	23	26	...	...	612	317	795	210	504	745	472	266	329	128	294	124	20	54	4258	159	153	312	184	340	98	135	757
4	27th June ...	486	841	194	479	682	406	209	349	134	238	138	51	19	4226	40	54	15	34	37	45	10	18	13	31	21	16	12	316	115	575	130	298	405	257	132	185	84	180	84	36	15	2496	83	81	164	85	205	40	76	406	
5	26th July ...	663	1230	255	696	883	548	312	484	218	394	190	35	38	5946	62	87	25	78	75	54	18	23	21	41	17	19	29	549	293	670	158	412	550	408	198	237	120	290	112	...	38	3486	132	121	253	142	277	73	97	580	
5	30th August ...	727	1366	336	779	1042	647	363	529	245	439	186	42	21	6722	52	80	35	75	64	61	20	27	19	39	20	11	5	508	337	677	224	420	657	450	242	257	125	252	119	35	17	3812	129	165	294	175	268	77	91	611	
4	26th September...	694	1247	334	841	975	537	341	487	224	421	187	54	68	6410	48	77	30	96	74	45	34	27	24	55	25	22	21	578	319	618	217	465	611	386	216	281	117	279	105	54	48	3716	171	168	339	139	193	41	101	474	
5	31st October ...	851	1578	411	1014	1164	570	433	625	292	436	236	68	130	7808	70	110	39	79	91	51	45	39	20	27	28	25	23	647	316	785	240	555	725	394	274	301	137	262	138	59	89	4275	183	193	376	120	187	42	87	436	
4	28th November...	610	1188	355	689	834	442	323	481	238	310	167	80	95	5812	55	105	23	56	54	33	42	26	24	26	20	35	10	509	230	601	194	382	487	254	194	231	127	194	113	...	50	3057	107	130	237	100	146	36	71	353	
4	26th December ...	455	912	240	520	609	336	262	352	212	231	144	101	67	4441	48	84	12	52	48	22	21	19	20	29	21	15	15	406	212	465	146	340	390	248	179	194	100	...	...	2646	104	94	198	123	117	37	66	343			
Total ...		7272	14267	3448	7883	10537	5818	3843	5584	2252	3851	1976	460	515	67706	628	1051	288	763	828	546	312	377	231	440	268	169	118	6019	3180	7593	2178	4968	6571	4026	2608	2931	1229	2648	1257	279	345	39813	1445	1608	3053	2176	3148	1013	1126	7463	
1918 Total ...		6771	10963	3006	4902	8612	4909	3586	3475	247	550	284	...	...	47305	516	920	260	588	684	480	321	335	50	144	84	...	...	4382	3882	6131	2118	3544	4735	2900	2609	1992	158	442	189	...	...	28700	998	1592	2590	4482	3300	2228	737	10747	

MESSAGE										VISITS OF SUPERINTENDENTS															INDIVIDUALS WHO ATTENDED CENTRES															VENEREAL DISEASE		ANTENATAL		
		72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	Total	72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	375, Abbey Hey Lane, Gorton	686, Oldham Road, Newton Heath	Jubilee Schools, Harpurhey	St. Aloysius	Holy Name	Total	72, Rosamond Street West	1, Manipur Street	135, Pollard Street	Collyhurst Recreation Rooms	230, Hyde Road, West Gorton	153, Cheetham Hill Road	42, Lower Moss Lane, Hulme	45, Higher Ardwick	375, Abbey Hey Lane, Gorton	686, Oldham Road, Newton Heath	Jubilee Schools, Harpurhey	St. Aloysius	Holy Name	Total	42, Lower Moss Lane, Hulme	45, Higher Ardwick	Total	42, Lower Moss Lane, Hulme	45, Higher Ardwick	Total
5 weeks ending	31st January ...	80	141	23	102	46	53	41	53	539	56	97	48	88	89	96	77	92	...	51	35	...	...	729	264	546	135	573	373	212	174	163	44	98	72	...	...	2654	...	...	...	...	...	...
4	28th February ...	65	168	32	83	62	38	37	46	531	58	45	24	70	8	60	35	49	...	26	35	...	...	390	273	535	140	553	385	205	142	182	46	120	70	...	...	2651	...	...	...	...	...	...
4	28th March ...	80	130	31	73	50	26	27	61	478	105	105	63	70	86	84	61	64	...	35	33	...	...	700	244	570	150	587	418	217	163	198	63	143	75	...	...	2828	...	...	...	...	...	...
4	26th April ...	62	105	18	81	53	30	29	57	435	68	58	29	58	77	71	...	76	109	59	...	...	...	664	442	521	114	257	379	190	145	109	63	120</										





PROVISION OF MILK AT REDUCED COST DURING THE YEAR 1919.  
STATEMENT SHOWING NUMBER OF CASES RECEIVING MILK, AMOUNT SOLD, COST, AND MODE OF DISTRIBUTION.

180E

In addition to the above, the Corporation purchased 8,976 lbs. of Dried Milk during the year. This was sold under similar conditions to Cow's Milk, the price charged being 10d. per lb. from January to August 2nd, and 1/2 per lb. afterwards.





2.—SHOWING THE WORK DONE BY THE HEALTH VISITORS DURING THE YEAR 1919  
AND COMPARING IT WITH THE WORK DONE IN 1916, 1917, AND 1918.

Classification of Visits	Number of Visits Paid in 1916	Number of Visits Paid in 1917	Number of Visits Paid in 1918	Number of Visits Paid in 1919
First visits to Infants .. ..	10,091	9,027	9,078	10,861
Subsequent visits to Infants.. ..	61,113	57,132	48,543	55,201
Subsequent visits to Children over 15 years of age and under 5 years	9,265	22,036	36,540	58,936
Subsequent visits <i>re</i> Infants and Young Children	1,184	1,243	2,203	1,588
Visits to House Inspections.. ..	968	....	....	4,475
House Inspections .. .. .	1,445	....	....	....
Subsequent visits <i>re</i> Sanitary Defects..	551	1,541	1,574	1,486
Subsequent visits <i>re</i> Limewashing .. ..	2,195	1,977	1,783	2,258
First visits to Verminous Cases (including Scabies)	145	709	966	631
Subsequent visits to Verminous Cases	1,038	2,233	2,771	2,328
Subsequent Investigations .. .. .	9,244	10,818	8,026	8,509
Subsequent visits .. .. .	19,032	23,295	15,516	13,792
Subsequent Measles Investigations ..	1,168	650	532	109
Subsequent visits .. .. .	1,678	591	665	95
Subsequent Whooping Cough Investigations ..	....	536	5,714	970
Subsequent visits .. .. .	....	705	14,002	1,422
Subsequent <i>re</i> Relief .. .. .	....	1,069	1,020	1,197
Subsequent Investigations (Influenza )	....	149	2,252	5,636
Subsequent <i>re</i> Pneumonia .. .. .	....	....	....	653
"Out " .. .. .	....	16,844	20,420	18,697
Total visits .. .. .	119,117	150,555	171,605	189,062
Number of Health Visitors at end of the year	36 (only 35 working, one ill)	36	Average for year 40 (4 Health Visitors doing only Measles and Whooping Cough Cases)	45 (4 Health Visitors doing only Measles and Whooping Cough Cases)
Number of Districts worked .. ..	32 (one not worked owing to illness of Health Visitor)	32 (Blackley not work- ed owing to pres- sure of other work)	38	41

## SCHOOLS FOR MOTHERS.

It is desirable to recall that ten of the centres are now under the Manchester Public Health Committee. At these, however, the Schools for Mothers render valuable assistance to the Medical Officers through their voluntary helpers who listen to the tales of the mothers, weigh the babies, and register the weights. They also give valuable assistance in attending to the children and babies while the mothers are attending classes. On the other hand, the Superintendent Nurse gives addresses to the mothers under the auspices of the Schools for Mothers, and otherwise lends them assistance in holding their classes. These classes furnish a decided attraction, as the schools provide teas while teaching mothers to cut out and make children's clothes, and also in knitting and crocheting work. The medical and voluntary work is thus interlocked. The arrangement works well.

It has hitherto been engineered by Miss H. K. Armitage, who has worked indefatigably and judiciously, and whose long service has been of the utmost value to the schools, and deserves the warmest recognition.

The report for the present year, 1919-1920, is signed by her successor Mrs. M. J. Scott. Mrs. Scott very justly regrets the retirement of Councillor McLachlan on the ground of bad health. The loss of his services is a severe one, though they have been fortunate in securing Councillor Godbert for the chairman. The report points out that four centres are entirely financed by the schools, viz., Didsbury, Withington, Rusholme, and Levenshulme. The schools also run two day nurseries in connection with the Openshaw and Collyhurst Centres, as well as the Spence Open-air Nursery in Ancoats, which may be regarded as an adjunct of the Ancoats Centre. The idea governing these day nurseries is to give special observation to backward and rachitic children attending the centres, and they constitute, therefore, a most useful extension of the medical work at the centres.

Mention should also be made of the Dental Clinic at Rosamond Street West, which is intended to serve as a centre for dental treatment to all the centres. The schools, however, have found this clinic a tax on their finances, or, rather, a lament that they cannot undertake more than extraction and scaling of teeth. The Public Health Committee have now agreed to take over this clinic.

One would also record the excellent work done by the Day Nursery adjoining the Rosamond Street Centre, though this is under the Manchester and Salford Day Nursery Association, and does not belong to the work of the schools.

Mrs. Scott pays a tribute to the successful efforts of the students of the Mather Training College to give nursery school games and teaching to the older children attending the centres.

The increasing prosperity of the centres is a matter of mutual congratulation to the Schools and to the Public Health Committee.

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## OPHTHALMIA NEONATORUM.

BY DR. M. A. C. DOUGLAS-DRUMMOND.

During the year 1919, 730 cases of Inflammation of the Eyes were notified from various sources, and visited by the Eye Nurses.

Of these, 32 were cases of disease in children and adults: 13 suffered from simple Conjunctivitis (2 cases of which had had Measles), 1 from Blepharitis, 1 from Keratitis, 9 from Nebulae Corneae (these were old cases brought to my notice by the Health Visitors), and 7 cases of Corneal Ulcers (in one case the right eye was lost after measles), and 1 Zonular Cataract from Congenital Malformation.

698 cases of Inflammation of the Eyes of newly-born children occurred. Of these, 344 were notified by the medical attendants (either private or at the Royal Eye Hospital) as cases of Ophthalmia Neonatorum. The remaining 354 cases were notified by midwives, but the medical attendants considered them to be cases of Conjunctivitis only.

Table A shows the distribution of cases both as regards the districts in which they occurred and the month of the year. The cases in which the corneae were affected are also shown in this table.

The largest number of cases of true Ophthalmia Neonatorum occurred in St. George's, Hulme, Chorlton-upon-Medlock, and Bradford.

The monthly rate of notified cases varies considerably, and there seems no special reason for the rise and fall in numbers. December heads the list, followed by October, August, and November. The general trend is upwards in the later months.



TABLE A, 1919.—SHOWING THE NUMBER OF CASES OF OPHTHALMIA NEONATORUM NOTIFIED MONTH BY MONTH IN DISTRICTS.

Month of the Year	January	February	March	April	May	June	July	August	September	October	November	December	Total	Cases not Notified	Cases with Corneal Complications
Ancoats ..	..	..	..	..	3	1	..	..	2	1	2	4	14	22	4
Central ..	..	3	..	..	6	1	2	2	1	2	..	..	17	4	1
St. George's ..	3	1	3	..	3	4	8	6	8	10	12	13	71	62	3
Cheetham ..	1	..	..	1	..	..	..	1	1	3	1	..	8	16	..
Crumpsall ..	..	..	..	..	1	..	1	1	1	..	1	..	5	3	..
Blackley ..	..	1	..	..	1	1	1	..	..	..	1	..	5	2	..
Harpurhey ..	..	..	..	..	1	2	..	..	..	..	1	..	4	7	..
Moston ..	..	..	..	..	..	..	1	..	1	1	..	1	4	3	..
Newton ..	..	..	..	..	..	2	1	..	1	1	2	3	13	21	3
Bradford..	2	1	..	1	..	1	3	2	1	1	1	5	18	48	..
Beswick ..	..	..	1	1	1	..	1	1	..	1	..	2	8	20	..
Clayton ..	..	..	..	..	..	..	..	..	1	..	..	..	1	3	1
Ardwick ..	3	2	1	2	..	1	3	..	..	1	..	2	15	30	1
Openshaw ..	1	..	1	1	1	3	2	2	..	1	1	3	16	11	1
West Gorton ..	..	..	2	..	..	1	1	1	2	2	..	..	9	9	1
Rusholme ..	2	..	..	..	2	..	1	..	1	..	2	..	8	2	1
Chorlton-upon-Medlock ..	..	..	3	..	1	3	2	3	3	3	..	4	22	16	2
Hulme ..	2	..	1	..	7	6	4	2	3	5	4	4	38	52	5
Moss Side ..	..	..	..	..	..	..	..	1	1	1	2	1	6	1	..
Withington ..	1	..	1	..	..	..	..	1	..	..	..	..	3	1	1
Gorton ..	1	..	..	..	3	3	1	1	..	3	..	1	16	20	4
Levenshulme ..	1	..	..	..	1	1	..	..	2	1	3	1	10	1	5
CITY..	17	9	13	6	32	30	32	24	34	37	33	44	311	354	33
Cases with Corneal Com.	..	4	3	1	4	3	4	..	4	4	2	4	33	=	608



Table C shows the day of onset, the attendant at birth, and the place of treatment.

The greatest number of onsets was on the second day of life, and in over one-half of the cases the first signs of disease appeared during the first four days.

Over one-half of the cases were treated by private doctors, and the remainder by the doctors of the Royal Eye Hospital.

In 33 instances there was involvement of the cornea, and 14 of these cases were admitted into the Royal Eye Hospital.

TABLE C—1919. OPHTHALMIA NEONATORUM.

	Interval in days between birth and onset										Attended by				Where treated				Total	
	1	2	3	4	5	6	7	8	9	10+	Total	Midwife	Doctor	Midwife and Doctor	Total	Home	Out-Patients at Hospital	In-Patients at Hospital		No Doctor
Notified .....	32	63	59	39	28	34	28	18	14	29	344	268	50	20	344	195	135	14	—	344
Not notified .....	26	71	37	46	34	29	23	26	28	34	354	331	10	13	354	283	38	1	32	354
Total notified cases											...	...	...	...	344	= 698				...
Total non-notified cases											...	...	...	...	354					...

TABLE D.—CASES WITH INVOLVEMENT OF THE CORNEA.

Right Eye	.. .. .	16
Left Eye	.. .. .	8
Both Eyes	.. .. .	9
		—
		33
		==

Table E shows the results of the 344 cases of *true* Ophthalmia Neonatorum, and of the of Conjunctivitis in *newly-born infants* :—

	Complete Recovery	One Eye Lost, Other Normal	One Eye Lost, the other Damaged	Both Eyes Lost	Both Eyes Damaged	One Eye Damaged	Death before recovery	Removed before recovery	TOTAL
ed .. ..	340	0	0	I	0	2	I	0	344
notified ..	354	..	..	..	..	..	..	..	354
	694	0	0	I	0	2	I	0	698

The number of cases with corneal involvement was 33 in all, and the results are very satisfactory, as 30 have completely recovered.

As to the case in which both eyes are lost, the child was having treatment from the second to the twenty-fourth day. It was then sent to the Royal Eye Hospital and admitted the same day.

In the first case in which one eye is damaged the onset was on the second day, when treatment began at the Out-patient Department of the Royal Eye Hospital, and on the eighteenth day the child was admitted as an in-patient.

In the second case the onset was on the fifth day, and treatment began at the Out-patient Department of the Royal Eye Hospital on the sixth day. The child was attending for 24 days, and was then admitted as an in-patient.

The case in which death occurred before recovery was progressing satisfactorily, so far as the eyes were concerned.



Total number of cases of Ophthalmia and Conjunctivitis in newly-born infants, and percentage with corneal complications, 1911-1918 :—

Year	No. of Cases	Percentage with Corneal complications
1911	525	7·23
1912	667	11·39
1913	573	12·04
1914	681	9·25
1915	642	7·79
1916	620	6·13
1917	539	6·86
1918	567	8·64

Amongst diseases which are made the subject of special administrative measures, we may here consider measles and whooping cough.

### MEASLES AND GERMAN MEASLES.

The actual numbers notified were in the respective quarters of 1919 :—

Diseases Notified	First Quarter	Second Quarter	Third Quarter	Fourth Quarter	Total
Measles, by Doctors . . . .	399	1,896	1,475	1,633	5,403
„ Others . . . .	264	1,174	777	802	3,017
Total . .	663	3,070	2,252	2,435	8,420
German Measles, by Doctors . .	20	57	32	57	166
„ „ Others . .	4	6	4	6	20
Total . .	24	63	36	63	186

It will be seen from the figures given below that in 1919 the fatality rate from Measles was not greatly above 1 per cent.

the deaths from Measles in successive years are shown in the following table :—

TABLE I.

## DEATHS FROM MEASLES IN THE CITY OF MANCHESTER.

Years	Under One Year			Years of Age				Total 5 Years and upwards	Total deaths at all ages
	Under 3 Months	3-5 Months	6-11 Months	1-	2-	3-	4-		
1908 } 1909	16	57	742	1470	599	338	168	168	3558
1909	2	6	78	164	58	37	16	35	396
1910	2	2	76	118	39	21	15	18	291
1911	1	7	73	152	47	30	16	11	337
1912	4	8	99	163	88	58	38	32	490
1913	5	3	62	98	37	20	19	15	259
1914	1	3	62	127	54	19	9	18	293
1915	1	5	98	215	64	29	20	15	447
1916	3	2	37	80	28	12	8	9	179
1917	0	5	62	98	55	24	17	16	277
1918	0	2	38	55	26	21	13	11	166
1919	0	2	24	37	18	11	3	9	104

would be unwise to claim the great reduction in mortality which is manifest in the figures in 1916-1919 as due entirely to better administration.

I make no doubt that it was partly due to the work of the Health Visitors.

The deaths in quarters are given in Table 2 below.

It will be seen that the heaviest mortalities occur in the first and second quarters of the year, though one year differs greatly from another in this report.

TABLE 2—MEASLES, DEATHS IN QUARTERS.

YEAR	1st Quarter	2nd	3rd	4th	Whole Year
1902 .....	67	68	60	47	242
1903 .....	158	104	54	29	345
1904 .....	100	189	83	53	425
1905 ..	41	99	77	13	231
1906 .....	60	266	118	32	475
1907 .....	51	73	50	55	229
1908 .....	116	78	71	101	366
1909 .....	155	164	45	32	396
1910 .....	32	118	71	70	291
1911 .....	48	197	61	31	337
1912 .....	214	211	28	37	490
1913 .....	85	105	58	11	259
1914 .....	37	132	50	74	293
1915 .....	153	224	39	31	447
1916 .....	27	84	31	37	179
1917 .....	134	123	14	6	277
1918 .....	36	55	30	45	166
1919 .....	12	32	10	44	104

In Table 3 is given a comparison of Manchester mortality with that occurring in other districts.

TABLE 3.—1919.—MEASLES MORTALITY RATES.—RATE PER 1,000 LIVING, COMPARED WITH MEAN OF FIVE YEARS.

	Mean 1914-18	1919
England and Wales .....	0·28	0·10
96 Great Towns .....	0·37	0·13
London .....	0·38	0·08
City of Manchester .....	0·36	0·13
Manchester Township .....	0·72	0·27
North Manchester .....	0·29	0·15
South Manchester .....	0·31	0·09
148 Smaller Towns .....	0·28	0·10

The distribution of mortality in districts shows that the disease caused the highest death-rates in West Gorton (0·41), Beswick and St. George's (0·32), and Ancoats (0·29).

(Table omitted.)

The above table shows that in 1919 the death-rate from Measles was in Manchester the same as that for the 96 great towns.

### WHOOPIING COUGH.

The cases of this disease notified are reached entirely through the schools, and the same disabilities attach to this mode of notification as were experienced in Measles. Notwithstanding, these notifications are useful. The cases are ascertained and dealt with by the health visitors in the same manner as cases of Measles.

The highest death-rates are in Ardwick (0·13), Harpurhey and Levenshulme (0·11), St. George's and Moston (0·09). The death-rate for 1919 was below that of the country generally, below that of the 96 great towns, and equal to that of London.

Whooping Cough notifications during 1919:—

First quarter.	Second quarter.	Third quarter.	Fourth quarter.	Total.
87	187	170	556	1,000



TABLE 1.

1919.—WHOOPING COUGH MORTALITY.—RATE PER 1,000 LIVING, COMPARED  
WITH MEAN OF FIVE YEARS.

	1914	1915	1916	1917	1918	Mean	1919
England and Wales .....	0'21	0'21	0'16	0'13	0'29	0'20	0'07
96 Great Towns.....	0'25	0'23	0'21	0'15	0'34	0'24	0'07
London .....	0'20	0'25	0'18	0'13	0'43	0'24	0'05
<b>City of Manchester ...</b>	0'38	0'09	0'40	0'06	0'43	0'27	0'05
Manchester Township ...	0'61	0'05	0'76	0'05	0'90	0'47	0'06
North Manchester.. ..	0'33	0'08	0'34	0'05	0'34	0'23	0'05
South Manchester .....	0'35	0'12	0'34	0'07	0'36	0'25	0'05
148 Smaller Towns .....	0'18	0'22	0'14	0'15	0'25	0'19	0'08

TABLE 2—WHOOPING COUGH, DEATHS IN QUARTERS.

Year	1st Quarter	2nd Quarter	3rd Quarter	4th Quarter	Whole Year
1909 .....	51	52	17	9	129
1910 .....	56	197	114	30	397
1911 .....	34	56	31	19	140
1912 .....	123	131	32	12	298
1913 .....	24	37	47	31	139
1914 .....	81	140	52	10	283
1915 .....	10	28	11	21	70
1916 .....	82	184	24	10	300
1917 .....	6	5	5	33	49
1918 .....	179	120	28	3	330
1919 .....	8	6	3	23	40

## DIARRHŒA.

For a number of years a continued effort has been made to prevent the breeding of flies in horse manure and other collections of refuse, an effort which was maintained in 1919. The number of deaths from this cause was much the lowest yet reached, except in 1918, and notwithstanding fluctuations in this number from year to year, comparison with other localities in this and previous years seems to point to success in this campaign against flies.

TABLE 1.—1919.—DIARRHŒA AND SIMPLE CHOLERA MORTALITY.—

DEATHS UNDER TWO YEARS OF AGE PER 1,000 BIRTHS,  
COMPARED WITH MEAN OF FIVE YEARS.

This table of comparison shows that the Diarrhœa rates in 1918 and 1919 were below those of the 96 great towns, a remarkable occurrence for Manchester.

	1914	1915	1916	1917	1918	Mean	1919
England and Wales .....	20·41	18·18	12·47	12·18	10·99	14·85	9·59
96 Great Towns .....	26·09	24·48	16·24	16·14	14·46	19·48	12·24
London .....	27·64	25·01	15·80	18·70	15·67	20·56	16·22
<b>City of Manchester</b> .....	26·85	26·56	19·01	19·00	9·29	20·14	11·05
Manchester Township .....	52·84	46·13	42·58	39·60	18·20	39·87	13·14
North Manchester.....	18·81	20·74	13·81	13·69	6·87	14·78	9·43
South Manchester .....	21·77	23·00	14·04	15·12	7·78	16·34	11·16
148 Smaller Towns .....	19·84	17·15	10·79	10·08	9·73	13·52	8·67

The number of deaths in successive years, and their distribution in quarters of the year, are exhibited in the following figures :—

TABLE 2.—DIARRHŒA AND SIMPLE CHOLERA DEATHS IN QUARTERS, 1909-1919.

	1909	1910	1911	1912	1913	1914	1915	1916	1917	1918	Mean for 1909-18	1919
First Quarter.....	19	30	44	49	60	67	49	55	48	30	45	28
Second Quarter...	35	29	50	40	46	53	57	48	30	31	42	27
Third Quarter.. ..	171	236	958	102	351	290	255	135	140	54	269	59
Fourth Quarter...	43	56	97	81	165	114	127	75	61	32	85	56
	268	351	1149	272	622	524	488	313	279	147	441	170

The meteorological data given in the following table show that the third quarter was moderately warm and humid :—

TABLE 3.

Third Quarter of the years	Mean Temperature	Rainfall, Inches	Humidity, per cent.	Diarrhoea and Simple Cholera Mortality. Annual Rate (third quarter) per 1,000 living
1891	58°·2	12·8	79 %	1·57
1892	57°·0	12·5	78 %	2·07
1893	60°·4	10·7	74 %	4·95
1894	57°·8	9·0	78 %	1·55
1895	60°·4	11·2	77 %	4·17
1896	58°·5	9·7	76 %	2·93
1897	58°·9	9·7	73 %	6·01
1898	60°·1	6·1	74 %	6·00
1899	60°·8	7·7	75 %	6·96
1900	60°·3	9·6	78 %	4·14
1901	61°·9	6·5	74 %	6·33
1902	57°·6	5·9	78 %	0·88
1903	57°·8	12·3	77 %	2·19
1904	60°·2	6·9	73 %	4·48
1905	58°·9	9·4	76 %	3·89
1906	60°·8	6·2	75 %	4·91
1907	58°·5	7·8	77 %	0·45
1908	59°·2	10·7	78 %	2·61
1909	57°·8	10·4	79 %	1·04
1910	58°·1	9·1	79 %	1·32
1911	63°·0	6·7	69 %	5·48
1912	56°·9	12·3	79 %	0·56
1913	59°·4	4·9	80 %	1·89
1914	59°·8	9·2	77 %	1·57
1915	58°·6	9·5	77 %	1·37
1916	60°·2	5·7	79 %	0·71
1917	60°·5	10·7	77 %	0·73
1918	59°·6	17·2	79 %	0·28
<b>Mean</b>	<b>57°·5</b>	<b>9·3</b>	<b>77 %</b>	<b>2·89</b>
1919	58°·7	7·3	77 %	0·30

The data in the above table are such as would have led us to expect a high diarrhœal mortality. This, however, was low. The table showing the distribution of diarrhœal mortality is not reproduced. It possesses the feature previously noted that the inequalities in fatality are well marked, as between district and district, and between one year and another.

## SANITARY ADMINISTRATION.

### 1. *Staff.*

A detailed statement was sent to the Ministry of Health in 1919, copies of which are again forwarded. The list is a long one, and is too long to print. Public Health Work is distributed among a number of Committees: The Public Health Committee; The Cleansing Committee, which deals with surface cleansing; the Markets Committee, which deals with slaughter-houses, inspection of meat, markets, and unsound food generally; the Rivers Committee, which has charge of all matters relating to water-courses and the purification of sewage; the Waterworks Committee, which deals with all matters concerning water fittings; the New Buildings and Improvements Act, which concerns itself with new plans. The Watch Committee has charge of common lodging-houses. The Education Committee administers the medical examination of school children, prepares plans for schools, provides treatment for disabled children, establishes clinics and in many ways touches on the duties of the Public Health Committee. The Public Health Committee divides its work among various Sub-Committees. The Hospitals Sub-Committee has charge of hospitals, dispensary work, infectious disease, including Tuberculosis and Venereal Diseases, and generally of medical matters affecting health. The Maternity and Child Welfare Sub-Committee has charge of the Maternity and Child Welfare Scheme, controls the Health Visiting, Maternity and Child Welfare Centres, the scheme for the distribution of milk, the cleansing of young children from vermin, and administers medical work in connection with certain diseases, Measles, Whooping Cough, Diarrhoea, and, as a matter of convenience, for Influenza and Pneumonia. The Housing Sub-Committee formerly met twice a week, and was in pre-war days the most active of all, especially as it was the custom of the Sub-Committee to visit insanitary houses proposed to be condemned. During the war their work fell to very small dimensions, as it was then, and is now, impossible to dispossess tenants, partly from lack of workers, partly because of expense to owners which they could not well support, partly because, in the house famine, which continues to grow worse, it was impossible to contemplate the closing of houses. As a result, many houses have fallen into great disrepair. The Nuisance Sub-Committee is another important Sub-Committee, which deals with a great variety of subjects—nuisances, smoke abatement, houses let in lodgings, offensive trades, workplaces, and so forth. The Workshops Sub-Committee takes charge of matters relating to workshops, including bakehouses, and the Shop Hours Acts. The Air Pollution Sub-Committee is a co-optative body, which concerns itself with investigation into methods and general principles, and has done some valuable scientific work. These Sub-Committees, in their turn, form sub-sections to deal with particular subjects.



So far as the staff is concerned, it consists of the Medical Officer of Health, who is appointed by and is directly under the control of the Town Hall Committee, as is also his chief clerk and a few of the other clerks. In theory the Medical Officer of Health is an advisory officer, equally at the service of all committees of the Corporation. Practically he is in Manchester, as in nearly every large town, the Chief Administrative Officer under the Public Health Committee. It was not until this year that he was formally recognised as being actually the Chief Administrative Officer. He is now definitely put in charge of all the work done in the Public Health and Sanitary Departments, including hospitals. But this is so far the only step taken to co-ordinate locally public health work. He is also Administrative Tuberculosis Officer, and Dr. D. P. Sutherland, the Tuberculosis Officer, has been appointed his deputy for administration. Further steps have been taken during this year to render possible the growing bulk of public health work. Dr. W. St. C. McClure has been placed in charge of the greater part of infectious disease work, and acts as deputy to the Medical Officer of Health in his absence, except as regards Tuberculosis. But his ordinary duties are by no means confined to infectious diseases. Dr. W. A. Young has charge of other sections of infectious diseases, and of the Venereal Diseases Scheme, also of the administration under the Rats and Mice Destruction Act, from which valuable benefits will ultimately be derived. Up to recently Dr. Young has taken charge of the work done under the Manchester Milk Clauses and the Dairies, Cowsheds, and Milkshops Order. Lieut.-Col. J. W. Brittlebank now has charge, as Chief Officer, of all work relating to milk, and it will be his business to keep all records and co-ordinate the agencies dealing with the purity of milk. Dr. Marguerite Douglas Drummond has direct charge of Maternity and Child Welfare Work, which embraces a wide field. She continues to fill the position of Executive Officer under the Midwives Acts. All these officers are directly responsible to the Medical Officer of Health, and are expected to be in constant touch with him.

This is not always easy, for various reasons. But the greatest reason is the establishment of separate offices, especially at some distance from each other.

It has been found impossible, for example, for the Medical Officer of Health to keep up a direct interest in the Public Health Work of Tuberculosis, which is now in the able hands of Dr. Sutherland, along with the various clinical duties devolving on the Clinical Tuberculosis Officer.

The enumeration of the staff will of itself explain the extent and manner in which the work has branched out in each of these sub-divisions. Especial mention should be made of the Sanitary Superintendent, Mr. Dale, and of Miss Seed, the Superintendent of Health Visitors, who, in a sense, form inde-

pendent heads. But they are, all the same, immediately under the Medical and Veterinary Chiefs in their respective departments of work, and are ultimately responsible to the Medical Officer of Health.

A full description of the allocation of work will be given hereafter.

A full list of the staff is given herewith :—

#### STAFF OF THE MANCHESTER PUBLIC HEALTH DEPARTMENT.

Medical Officer of Health and Administrative Tuberculosis Medical Officer.

##### *General Office.*

Senior Assistant to the Medical Officer of Health.

Junior Assistant to the Medical Officer of Health and Deputy for Venereal Diseases.

Veterinary Surgeon, in charge of matters relating to Milk (attached to the Medical Officer of Health).

1 Chief Clerk.

1 Statistical Clerk.

12 Clerks.

3 Special Inspectors.

TOTAL .. .. 23

##### *Rats and Mice (Destruction) Act, 1919.*

1 Executive Officer.

1 Clerk.

TOTAL .. .. 2

##### *Tuberculosis Department (Dispensary Staff).*

1 Senior Tuberculosis Officer and Deputy Administrative Tuberculosis Officer.

2 Assistant Tuberculosis Officers.

4 Consultants (part time).

6 Clerks.

6 Nurses (Notification of Phthisis).

1 Organising Clerk.

1 Financial Clerk.

10 Clerks (of whom 6 are temporary).

3 Inspectors.

5 Nurses.

1 Caretaker.

2 Cleaners.

TOTAL .. .. 42

*Maternity and Child Welfare Department.*

- 1 Assistant to the Medical Officer of Health in connection with Maternity and Child Welfare.
- 1 Assistant Inspector of Midwives (a nurse).
- 3 Whole-time Medical Officers at Child Welfare Centres.
- 5 Part-time Medical Officers at Child Welfare Centres.
- 8 Superintendents of Child Welfare Centres.
- 3 Assistant Superintendents of Child Welfare Centres.
- 4 Masseuses (1 whole time, 3 part time).
- 3 Special Midwifery Nurses.
- 2 Investigators *re* Incomes.
- 3 Ophthalmic Nurses.
- 3 Clerks.
- 3 Milk Clerks under the Milk Distribution Scheme.
- 9 Cleaners (3 are part time) at Child Welfare Centres.

*Health Visitors Department.*

- 1 Lady Superintendent of Health Visitors.
  - 1 Assistant Superintendent.
  - 1 Cleansing Nurse.
  - 52 Health Visitors.
  - 7 Clerks (including 1 temporary).
- TOTAL .. .. 110

## INSPECTORIAL STAFF.

*A—Technical.*

- 1 Superintendent (Consulting).
  - 1 Deputy Superintendent.
  - 1 Chief Inspector.
  - 1 Special Drainage Inspector.
  - 2 Drainage Inspectors.
  - 3 Food and Drugs Inspectors.
  - 4 Lodging-house Inspectors.
  - 1 Canal Boats Inspector.
  - 2 Milkshops Inspectors.
  - 1 Smoke Inspector (Chief Chemical).
  - 3 Smoke Inspectors.
  - 8 Shops and Workshops Inspectors (Male).
  - 2 Shops and Workshops Inspectors (Female).
  - 35 District Inspectors.
- TOTAL .. .. 65

*B—Clerical.*

1 Chief Clerk and Cashier.	
1 Magistrates' Summons, Statistical and Accounts Clerk.	
1 Assistant ditto.	
1 Shorthand and Minute Clerk.	
1 Senior Clerk, Shops and Workshops Department.	
1 Assistant ditto.	
28 Clerks (various).	
1 Messenger.	
	TOTAL .. .. 35

*C—Drainage Department.*

1 Manager.	
3 Clerks of Works.	
2 Clerks.	
	TOTAL .. .. 6

*Civic Buildings.*

1 Caretaker.	
1 Liftman.	
6 Cleaners.	
2 Drain Examiners' Labourers.	
	TOTAL .. .. 10

*D—18 Male Corporation Conveniences.*

1 Foreman.	
1 Assistant Foreman.	
30 Lavatory Attendants.	

*E—13 Female Corporation Conveniences.*

1 Inspector of Female Lavatories.	
22 Lavatory Attendants.	
12 Urinal Cleaners, who clean all the Lavatories within the City.	
	TOTAL .. .. 67

*F—Walton House—Manchester Corporation Lodging-house for 467 men.*

1 Manager.	
1 Assistant Manager.	
9 Porters.	
2 Firemen.	
5 Laundresses.	
4 Kitchen Cleaners.	
9 Bed Makers.	

*Catering Staff.*

4 Shop Assistants.	
1 Cook.	
3 Kitchen Maids.	
	TOTAL .. .. 39



G—*Ashton House*—Manchester Corporation Lodging-house for 210 women.

- 1 Matron.
- 2 Firemen.
- 4 Porteresses.
- 2 Kitchen Cleaners.
- 6 Bed Makers.

*Catering Staff.*

2 Shop Assistants. TOTAL .. .. 17

*Monsall Fever Hospital*, Newton Heath, Manchester—600 beds.

- |                                   |                          |
|-----------------------------------|--------------------------|
| 1 Medical Superintendent.         | 1 Matron.                |
| 2 Assistant Medical Officers.     | 2 Assistant Matrons.     |
| 1 Steward.                        | 1 Night Superintendent.  |
| 1 Assistant Steward.              | 1 Housekeeper.           |
| 1 Dispenser.                      | 10 Sisters.              |
| 1 Medical Superintendent's Clerk. | 13 Staff Nurses.         |
| 3 Chaplains.                      | 66 Probationers.         |
| 13 Porters.                       | 21 Housemaids.           |
| 1 Carter.                         | 1 Porter's Maid.         |
| 1 Assistant Carter.               | 2 Cooks.                 |
| 1 Lurry Boy.                      | 5 Scullery Maids.        |
| 1 Engine Tenter.                  | 1 General.               |
| 3 Laundry Labourers.              | 24 Ward Maids.           |
| 1 Gardener.                       | 1 Laundress.             |
| 3 Assistant Gardeners.            | 1 Head Dining Hall Maid. |
| 2 Labourers.                      | 4 Seamstresses.          |
| 1 Pony Boy.                       | 6 Ironers.               |
|                                   | 13 Calenderers.          |
|                                   | 5 Charwomen.             |

TOTAL .. .. 215

*Clayton Vale Smallpox Hospital*, Newton Heath, Manchester.

- 1 Caretaker.
- 1 Housekeeper.
- 1 Charwoman.

TOTAL .. .. 3

(In addition, Maids and Nurses are employed when Smallpox cases are being treated in the Hospital.)

*Baguley Sanatorium* (Tuberculosis), Timperley, Cheshire—308 beds.

1 Medical Superintendent.	1 Matron.
3 Assistant Medical Officers.	1 Assistant Matron.
3 Chaplains.	1 Home Sister.
1 Dentist.	1 Night Sister.
1 Steward.	8 Ward Sisters.
1 Steward's Clerk.	15 Staff Nurses.
1 Dispenser Clerk.	12 Probationers.
1 Farm Bailiff and Head Gardener.	1 Laundress.
1 Engineer.	1 Assistant Laundress.
1 Assistant Engineer.	5 Laundry Maids.
3 Stokers.	1 Cook.
4 Porters.	1 Assistant Cook.
1 Pigman.	4 Kitchen Maids.
2 Labourers.	1 Seamstress.
6 Assistant Gardeners.	1 Assistant Seamstress.
1 Handyman.	2 House Maids.
1 Lodge Keeper.	3 Home Maids.
—	20 Ward Maids.
32	—
	79

TOTAL .. .. III

*Abergele Sanatorium*, North Wales.—56 beds and cots.A—*Hospital Staff.*

1 Medical Superintendent.	1 Matron.	2 Ward Maids.
1 Estate Steward.	1 Sister.	1 Kitchen Maid.
1 Engineer.	1 Staff Nurse.	1 Scullery Maid.
1 Gardener.	5 Probationers.	1 Patients' Dining Room
1 Stoker.	1 Cook.	Maid.
2 Joiners.	1 Laundress.	1 Between Maid.
1 Gardener's Boy.	1 Laundry Maid.	1 Charwoman.
1 Clerk.	1 Housemaid	1 Laundry Washer.
	Waitress.	1 Seamstress.
	—	
		30

B—*Forest Staff.*

1 Foreman.
1 Assistant Foreman.
2 Labourers.
1 Forester's Boy.
—

*C—Farm Staff.*

- 1 Foreman.
- 1 Ploughman.
- 1 Carter.
- 1 Cattleman.
- 2 Labourers.
- 1 Cattleboy.
- 1 Apprentice (Farming).

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 8

TOTAL .. .. 43

*Housing Department in Civic Buildings.*

- 1 Housing Manager.\*
- 1 Deputy Housing Manager.
- 3 Building Inspectors.
- 6 Surveying Assistants.
- 1 Draughtsman.
- 6 Clerks.
- 4 Housing Inspectors.
- 2 Superintendents of Corporation Dwellings.
- 1 Estate Overlooker.
- 2 Cleaners for Corporation Dwellings.
- 1 Foreman, Painting Staff.
- 1 Storekeeper, Painting Department.

TOTAL .. .. 29

\* With regard to architectural matters the Housing Manager is under the City Architect.

GRAND TOTAL, 815.

The following are the duties of different classes of Sanitary Inspectors:—

The three inspectors attached to the Medical Officer of Health carry out special inspections and investigations into nuisances, incidence of disease, preparation of foods, and generally into any matters in which the Medical Officer of Health or his assistants require assistance.

The 35 District Inspectors make inspections in corresponding districts into which the City is divided when complaints of nuisance are received, and also carry out systematic inspections of their district. They make daily reports of their inspections. In Court cases they draw up a statement of their case. They attend to all matters connected with infectious disease, investigate sources of infection, give instructions as to precautions to be adopted, and arrange for disinfection.

The three Drainage Inspectors make examination of drains on complaint, and draft specifications of alterations in drainage required.

The three Food and Drugs Inspectors take samples under the Sale of Food and Drugs and the Margarine Acts, for submission to the Public Analyst, both formal and informal; also samples of milk and water for bacteriological analysis.

The four Lodging-house Inspectors inspect houses let in lodgings, and are responsible for the carrying out of the bye-laws.

The one Canal Boats Inspector inspects canal boats and attends to registration under the Canal Boats Acts. He also serves Magisterial Summonses.

The two Milkshops' Inspectors see that the Dairies, Cowsheds, and Milkshops Orders and Regulations made thereunder are carried out. They also attend to the regulations for the manufacture and sale of ice cream.

The ten Factories and Workshops' Inspectors make inspections and reports under the Factories and Workshops Acts, and also under the Shop Hours Act. In particular they deal with fire escapes. Two are females, who attend to out-workers.

The four Smoke Inspectors make observations and reports on the emission of smoke from chimneys not being the chimneys of a private dwelling-house. One of these is a technical chemist, and is responsible for the general working.

#### *Hospital Administration.*

This has been outlined under Sanitary Administration in general. A few further details are added.

The ambulance service consists of four motor ambulances and two motor bedding vans, which are the property of the Public Health Committee. But the administration is carried out by the Cleansing Committee, in association with disinfection. The disinfection of rooms is carried out with the aid of hand-carts, in which the materials are conveyed to the premises concerned. Fever cases in general are recommended by practitioners, but are not supposed to be removed to the hospital without previous intimation to the Medical Officer of Health, either at his office or at his private residence. All cases of tuberculosis are admitted on the recommendation of Dr. Sutherland (or other member of the medical staff acting for him). Similarly, all discharges from the hospital or at home are intimated to the office, and all deaths.

Lists of patients dangerously ill are posted at the Public Health Office, advertised in the newspapers, and posted at Police Stations.

The Public Health Office and various departments are on the National Telephone System, and by the courtesy of the Watch Committee on the Police System of telephones. Matters relating to the hospitals are considered at the meetings of the Hospitals Sub-Committee, which are held twice a month. At other times urgent matters are dealt with by the Chairman of the Sub-committee.



3. A list of Local Acts, special Local Orders, or general Adoptive Acts in force in the district, and an account of their administration :—

Public Health Department,  
Sanitary Section,  
Civic Buildings,  
1, Mount Street, Manchester,  
July 27th, 1920.

LIST OF LOCAL ACTS, SPECIAL LOCAL ORDERS, AND GENERAL ADOPTIVE ACTS IN FORCE IN THE CITY OF MANCHESTER, ADMINISTERED BY THE PUBLIC HEALTH COMMITTEE.

*Provision, Alteration, Enlargement, Reparation, or use of Privies, Ashpits, Water-closets, and other Closets.*

- |                |  |
|----------------|--|
| Local Act      | 1. Manchester Police Regulation Act, 1844, Section 68.                               |
| Local Act      | 2. Manchester Corporation Waterworks and Improvement Act, 1867, Section 42.          |
| Local Act      | 3. Manchester Corporation Waterworks and Improvement Act, 1869, Section 34.          |
| Local Bye-laws | 4. Manchester Order, 1881, and the Bye-Laws adopted thereunder on January 6th, 1897. |
- 2 and 3 extensively used.
- Conversion from middens and pail-closets to w.c.'s dealt with under the Public Health Act, 1875.

*Provision of Privy and Urinal Accommodation at Hotels and other Houses.*

- |           |  |
|-----------|--|
| Local Act | Manchester Police Regulation Act, 1844, Section 71. Has been extensively used. |
|-----------|--|

*Provision of Sanitary Conveniences for Public Accommodation.*

- |           |   |
|-----------|---|
| Local Act | Manchester Police Regulation Act, 1844, Section 50. |
|-----------|---|
- Manchester Corporation (General Powers) Act, 1904, Section 91. (In conjunction with Public Health Act, 1875, Section 39, and Public Health Acts, Amendments Act, 1890, Section 20.)
- 18 public conveniences for males and 13 for females, at which charges are made.
- 128 such conveniences in all have been provided.

*Owners to Repair Private Drains.*

- |           |  |
|-----------|--|
| Local Act | Manchester Improvement Act, 1845, Section 46. Section much used. |
|-----------|--|

*Miscellaneous.*

- |           |  |
|-----------|--|
| Local Act | 1. Downspouts, Gutters, and Stench Traps, Manchester Corporation Waterworks and Improvement Act, 1869, Section 29. |
| Local Act | 2. Offensive matter, Manchester Corporation Waterworks and Improvement Act, 1869, Section 30.                      |
| Local Act | 3. Keeping of Swine in Prohibited Places, Section 31.  |
| Local Act | 4. Offensive Trades will be repealed if Ministry agree to Schedule, Section 32.                                    |
| Local Act | 5. Saving Clause for General Law as to Nuisances, Section 33.  |
1. Much used.
2. Not much used.
3. Found valuable, but not used much in recent years

*Offensive Trades.*

(Extending Provisions of Manchester Corporation.)

(Waterworks and Improvement Act, 1869.)

Manchester Corporation and Improvement Act, 1871, Section 30. Will be Local Act repealed if the Ministry agree to Schedule.

*Slaughter-houses.*

To discontinue use of slaughter-houses which are a nuisance.

Manchester New Streets Act, 1853, Sections 51-52. At present administered Local Act by the Markets Committee.

*Cellar Dwellings.*

Prohibiting use of cellars as dwellings.

Manchester New Streets Act, 1853, Sections 45 to 48. Cellar dwellings extinct Local Act until 1920. Some are now being used.

*Buildings Unfit for Human Habitation.*

Power to prohibit the use of.

The extensive alterations carried out by the Manchester Corporation are reported in the annual reports of the Medical Officer of Health, and full records are kept, with maps, etc.

Manchester Corporation Waterworks and Improvement Act, 1867, Section 41. Local Act

*Yards, Courts, and Passages.*

To drain and to pave and flag surfaces.

Manchester New Streets Act, 1853, Section 41. Very frequently used. Local Act

*Yards, Courts, and Passages.*

(Amending Section 41 of the Manchester New Streets Act.)

Empowering service of short notice for drainage, and repairs to surfaces of yards, courts, and passages.

Manchester Corporation Act, 1891, Section 38. Extensively used. Local Act

*Cleanse and Limewash Houses and Privies.*

Manchester Police Regulation Act, 1844, Section 86. Extensively used. Local Act

*Smoke Nuisances.*

Empowering Magistrates to impose increased penalty.

Manchester Corporation Act, 1882, Section 44. (In conjunction with Public Health Act, 1875, Section 91.) Local Act

Used in many instances, but increased fine rarely imposed.

*Houses Let in Lodgings.*

Bye-Laws relating to above made under Section 90 of the Public Health Act, 1875, Local Bye-laws amended or extended by Section 8 of the Housing of the Working Classes Act, 1875, and Section 6 of the Housing and Town Planning, etc., Act, 1909.

Four special inspectors employed. Bye-laws herewith strictly enforced.

*Inspection of Houses Occupied by more than One Family.*

Empowering Magistrates to make Orders authorising Inspector of Nuisances to inspect premises.

Manchester Corporation Act, 1882, Section 43. Rarely required. Local Act

*Dairies, Cowsheds, and Milkshops.*Local  
Regulations

Regulations for the registration, inspection, and control of above.

Made under Section 31 of the Contagious Diseases (Animals) Act, 1878, and Section 9 of the Contagious Diseases (Animals) Act, 1886, and Article 13 of the Dairies, Cowsheds, and Milkshops Order, 1885.

Enforced (copies herewith).

Two Inspectors.

---

*Tuberculosis in Milk.*

Local Act

Manchester Corporation (General) Powers Act, 1899, Section 19, amended by Corporation (General) Powers Act, 1904, Section 92.

Enforced (see annual reports of the Medical Officer of Health).

---

*Ice Cream.*

Regulating the Manufacture and Sale of Ice Cream.

Enforced. (See copies herewith.)

Local Act

Manchester Corporation (General Powers) Act, 1899, Section 18.

---

*Unhealthy Areas and Artisans' Dwellings.*

Powers to deal with Unhealthy Areas and Construct Artisans' Dwellings.

Local Order

Manchester (Artisan) Order, 1890. Confirmed by the Local Government Board's Provisional Order, Confirmation (Artisan and Labourers' Dwellings) Act, 1890, and the Manchester Dwellings Reconstruction Scheme, 1891.

---

*Nuisances from Horse Manure.*

Construction of Middensteads and Periodical Removal of Manure.

Local Bye-laws

Bye-laws made under the Public Health Act, 1875, Section 44. Bye-law herewith. Much used.

---

*Tents, Vans, Sheds, etc.*

Bye-laws *re* Sanitary Condition of Tents, Vans, Sheds, etc., used for Human Habitation.

Local Bye-laws

Made under Section 9 of the Housing of the Working Classes Act, 1885. Bye-law herewith. Enforced.

---

*Sanitary Conveniences at Workshops, etc.*

Power to enforce provision of sanitary conveniences at workshops and manufactory

Adoptive Act

Public Health Acts, Amendment Act, 1890, Section 22. Extensively used.

---

*Sanitary Conveniences used in Common at Dwelling-houses.*

To prevent nuisances from improper use of conveniences used in common by occupiers of two or more separate dwellings.

Adoptive Act

Public Health Acts, Amendment Act, 1890, Section 21. Enforced. Rarely required.

*Various matters dealt with under Public Health Acts, Amendment Act, 1907.*

Section 34. Extension of Section 41, Public Health Act, 1875.

Adoptive Act

Very few middens and pails left.

„ 35. As to nuisances.

Sub-sections 1 and 3 rarely needed. Sub-section 2 much needed or its equivalent.

„ 46. Provision for filling up cesspools.

Rarely needed.

„ 49. Summary power to provide sinks and drains.

Rarely used.

„ 36. Rainwater pipes not to be used as soil pipes.

Strictly enforced.

„ 37. Water or stack pipes not to be used as ventilating shafts.

Strictly enforced.

In common with  
Improvements and  
Buildings  
Committee.

*Measles and Whooping Cough.*

Manchester Corporation Act, 1911, Section 56 (as amended by Section 61 of the Local Act Manchester Corporation Act, 1914).

Very useful to the School Authorities. Useful to the Public Health Committee so far as whooping cough is concerned. But much more useful work is done under the Notification of Measles to the Medical Officer of Health than under notification to teachers.

*Infectious Diseases.*

Public Health Acts Amendment Act, 1907—Sections Adopted :—

Adoptive Act

Section 52. Infected persons not to carry on occupation.

Carried out. But “infected” needs defining.

„ 53. Power to require dairymen to furnish lists of sources of supply.

Practically no occasion to use.

„ 54. Dairymen to notify infectious diseases existing amongst their servants.

Carried out so far as known.

„ 55. Infected clothes not to be sent to laundry.

Enforced.

„ 56. Filthy and dangerous articles to be purified.

Carried out.

„ 57. Children suffering from infectious diseases not to attend school.

Enforced.

„ 58. List of scholars to be furnished where scholar in a school is suffering from infectious disease.

Carried out in isolated cases.

„ 61. Removal of persons from infected premises.

No shelter provided, nor in recent years needed.



Section 62. Amendment of Section 126 of the Public Health Act, 1875.

No prosecution instituted. Offenders summoned before the Hospitals Sub-Committee.

„ 63. Prohibiting conveyance of infected persons in public vehicles.  
Enforced.

„ 64. Driver, etc., of infected person to give notice.

„ 65. Section 124 of Public Health Act, 1875, to apply to persons who cannot be isolated.

Would be useful if required. So far not required.

„ 67. Provision of nursing attendance by Local Authority.  
Provision made in outbreak of influenza only.

„ 68. Wake not to be held over body of person dying of infectious disease.  
Wakes are believed to be now infrequent. Above section has been used by way of anticipation.

„ 50. (In common with Watch Committee) *re* provision of ambulance.  
Administered by the Watch Committee. Adequate provision made.

„ 59. (In common with Libraries Committee) provision as to library books.  
Strictly enforced.

#### *Venereal Diseases Act, 1917.*

Powers and Duties of Local Authorities *re* Venereal Disease. Public Act not adoptive.

Section 1 applicable only to certain authorities by order of the Ministry of Health.

No proceedings instituted, and no violation of the Act ascertained by the Public Health Officers or by the Police.

The following is an extract from the Standing Orders showing the duties referred to the Public Health Committee and the legal powers appertaining :—

*Resolved,—*

That the following members of the Council, viz. :—

The Lord Mayor	Councillor Hart
Alderman Birtles	„ Caroline Herford
„ Chapman	„ James
„ Fildes	„ Kendall
„ Jackson	„ Mellor
„ Johnston	„ O'Loughlin
„ Turnbull	„ Pierce
Councillor Alexander	„ Jane Redford
„ Margaret Ashton	„ Redmond
„ Bayliss	„ Simon
„ Godbert	„ Arthur Taylor
„ Harper	

be, and they hereby are, appointed a Committee, to be called the "Public Health Committee," to carry out and enforce within the City all provisions, whether of a public or local Act of Parliament, Orders in Council, or any bye-laws in force within the City, in relation to nuisances and sanitary matters :—

Also the various provisions contained in the Public Health Acts with respect to insufficient, imperfect, or unsatisfactory internal drainage, offensive ditches, and collections of matter, offensive trades, and bye-laws as to houses let in lodgings (not being common lodging-houses) ;—

Also to carry out and enforce the following provisions contained in the Public Health Acts Amendment Act, 1907 :—

Section 34 (Extension of section 41 of the Public Health Act, 1875).

Section 35 (As to Nuisances).

Section 46 (Provision for filling up cesspools, &c.).

Section 49 (Summary Power to provide sinks and drains for buildings).

And also (in common with the Improvement and Buildings Committee) :—

Section 36 (Rain-water pipes not to be used as soil pipes).

Section 37 (Water or stack pipes not to be used as ventilating shafts).

Also to carry into force in the City the several provisions, powers, and remedies contained in the Public Health Acts, the local Act 7 and 8 Victoria, cap. xl. [section 68], the Manchester Corporation Waterworks and Improvement Act, 1867 [section 42], the Manchester Corporation Waterworks and Improvement Act, 1869 [section 34], the Manchester Order, 1881, and the bye-laws adopted on January 6th, 1897 [Council Minutes 1896-7, page 239], with respect to the provision, alteration, enlargement, reparation, or use of privies, ashpits, water-closets, and other closets ;—

Also to carry out in suitable cases the powers of section 62 of the Public Health Act, 1875 [Local Authority may require houses to be supplied with water in certain cases], as amended by the Public Health (Water) Act, 1878 ;—

Also to manage and transact all matters and purposes relating to the provision of urinal accommodation at hotels and other houses under section 71 of the local Act 7 and 8 Victoria, cap. xl., or otherwise, and with respect to sanitary conveniences used in common, and sanitary conveniences for workshops or manufactories, under sections 21 and 22 of the Public Health Acts Amendment Act, 1890 ;—

Also to manage and transact the powers and duties of the Council in relation to sanitary conveniences for public accommodation under section 50 of the Manchester Police Act, 1844, section 39 of the Public Health Act, 1875, section 20 of the Public Health Acts Amendment Act, 1890, and section 91 of the Manchester Corporation (General Powers) Act, 1904 ;—

Also to carry out the following resolution adopted by the Council on March 16th, 1910 [Council Minutes, 1909-10, p. 317] :—

That the conditions for the use of public lavatories in this City are unjust, especially for females ; that our entire public lavatory accommodation is inadequate ; and this Council requests the Committee responsible to remedy these evils as early as possible.

And the following resolution adopted by the Council on January 10th, 1912 [Council Minutes, 1911-12, p. 211] :—

That, with a view to relieving the \*Sanitary Committee to some extent of the difficulties experienced in providing sites for Public Lavatories, it be an instruction to the various Committees of the Corporation when considering schemes for the erection of new buildings to make arrangements, where practicable and desirable, for the provision of Public Lavatory accommodation in such buildings.

\* Now Public Health Committee.

Also to carry out and enforce the provisions contained in sections 29 [spouts, gutters, and stench traps], 30 [offensive matter], 31 [keeping swine in prohibited places], 32 [offensive trades], and 33 [saving for general law as to nuisances] of the Manchester Corporation Waterworks and Improvement Act, 1869, section 30 [noxious trades] of the Manchester Improvement Act, 1871, sections 43 [lodging-houses] and 44 [smoke nuisances] of the Manchester Corporation Act 1882, section 38 [repair of drains] of the Manchester Corporation Act, 1891, section 18 [ice creams, &c.] of the Manchester Corporation (General Powers) Act, 1899, and paragraph 6 of the 6th Schedule of the Manchester Corporation (General Powers) Act, 1904 ;—

Also to enforce the provisions relating to tuberculosis and milk contained in section 19 of the Manchester Corporation (General Powers) Act, 1899, and section 92 of the Manchester Corporation (General Powers) Act, 1904, the Public Health (Tuberculosis) Regulations, 1908, the Public Health (Tuberculosis in Hospitals) Regulations, 1911 ; the Public Health (Tuberculosis) Regulations, 1911 ; and the Public Health (Tuberculosis) Regulations, 1912—as amended by the Public Health (Tuberculosis) Regulations, 1916 ;—

Also to carry out (subject to the approval of this Council) the powers and duties of the Corporation relating to Tuberculosis and Sanatoria under the National Insurance Act, 1911 ; and the Public Health (Prevention and Treatment of Disease) Act, 1913 ;—

Also to carry into effect the provisions, with respect to infectious diseases and hospitals and the isolation of cases of infectious disease, contained in the Public Health Acts ; the Epidemic and other Diseases Prevention Act, 1883 ; the sections, adopted by this Council on January 7th, 1891 [Council Minutes 1890-91, p. 192], of the Infectious Diseases (Prevention) Act, 1890 ; the Manchester Order, 1881 (Articles viii. and ix.), as amended by section 39 of the Manchester Corporation Act, 1891, and by the Order of the Council made on January 6th, 1892 [Council Minutes 1891-2, p. 224], and sanctioned by the Local Government Board on February 4th, 1892 ; the Infectious Disease (Notification) Acts, 1889 and 1899 (as modified by section 5 of the Local Government (Emergency Provisions) Act, 1916), and the orders thereunder (except that relating to ophthalmia neonatorum) ; section 77 (2) relating to hospitals of the Manchester Corporation (General Powers) Act, 1904 ; also the rules and regulations for the management of the Monsall Hospital adopted by the Council on February 3rd, 1897 [Council Minutes, 1896-7, p. 323] ; and the resolution of the Council adopted on September 7th, 1898 [Council Minutes, 1897-8, p. 1843], as follows, viz., “ That the Council hereby undertake that, in future, cases of smallpox will not be received or treated on any part of the Monsall Hospital site ” ;—

Also to carry out and enforce the provisions contained in section 56 (Measles and Whooping Cough) of the Manchester Corporation Act, 1911, as amended by section 61 of the Manchester Corporation Act, 1914 ;—

Also to carry out and enforce the following provisions contained in the Public Health Acts Amendment Act, 1907 :—

Section 52 (Infected person not to carry on occupation).

Section 53 (Power to require dairymen to furnish list of sources of supply).

Section 54 (Dairymen to notify infectious diseases existing among their servants).

Section 55 (Infected clothes not to be sent to laundry).

Section 56 (Filthy and dangerous articles to be purified).

Section 57 (Children suffering from infectious diseases not to attend school).

Section 58 (List of scholars to be furnished where scholar in a school is suffering from an infectious disease).

Section 61 (Removal of person from infected premises).



Section 62 (Amendment of section 126 of the Public Health Act, 1875).

Section 63 (Prohibiting conveyance of infected persons in public vehicles).

Section 64 (Driver, &c., of infected person to give notice).

Section 65 (Section 124 of the Public Health Act, 1875, to apply to persons who cannot be isolated).

Section 67 (Provision of nursing attendance by local authority).

Section 68 (Wake not to be held over body of person dying of infectious disease).

Also (in common with the Libraries Committee) :—

Section 59 (Provisions as to library books).

And also (in common with the Watch Committee) :—

Section 50 (Local Authority may provide an ambulance).

Also to carry out the powers and duties of the Council under the Venereal Disease Act, 1917, and the Orders thereunder ;—

Also to deal with the powers and duties of the Council under the Vaccination Acts, 1867 to 1907 ; and the Notification of Births Acts, 1907 and 1915 ;—

This Council hereby delegate to the Public Health Committee the powers and duties of the Council under the Maternity and Child Welfare Act, 1918, so far as they may be delegated to a Committee, and also the powers and duties conferred or imposed upon the Council as the Local Supervising Authority under the Midwives Acts, 1902 and 1918, and the Council hereby instruct the Public Health Committee to form a Sub-Committee to be styled "The Maternity and Child Welfare Sub-Committee" for the purpose of dealing with matters arising under such Acts. Such Sub-Committee shall consist of the Lord Mayor, 16 members of the Council (who may or may not be members of the Public Health Committee), and eight co-opted members representing the various interests involved, at least two members of such Sub-Committee to be women ;—

The Public Health Committee are further authorised to give effect to the provisions of and to carry out the duties of the Council under the Cleansing of Persons Act, 1897 ; the Rag Flock Act, 1911 ; and the Fabrics (Misdescription) Act, 1913 ;—

Also to carry out and enforce within the City the provisions contained in the Sale of Food and Drugs Acts, 1875 to 1907, as altered, amended, or extended by sections 5 and 152 of the Municipal Corporations Act, 1882, the Statute Law Revision Act, 1883, and section 11 of the Post Office Act, 1891 ;—

Also to deal with the provisions of the Fertilizers and Feeding Stuffs Act, 1906, and the regulations thereunder ; also of the Destructive Insects and Pests Acts, 1877 and 1907, and the Regulations thereunder not referred to the Markets Committee ;—

Also to carry out the powers and duties of the Council as a local authority under the Poisons and Pharmacy Act, 1908, and the Regulations and Orders thereunder ;—

Also to carry into effect such of the provisions of the Canal Boats Acts, 1877 and 1884, and the Rules under the same, as devolve upon the Corporation ;—

Also to carry into effect the provisions of section 34 of the Contagious Diseases (Animals) Act, 1878, the unrepealed portions of section 9 of the Contagious Diseases (Animals) Act, 1886, the Board of Agriculture Act, 1889, the Dairies, Cow Sheds, and Milk Shops Order of 1885, and the Dairies, Cow Sheds, and Milk Shops Amending Order of 1886, with reference to keeping a register by the local authority of dairies, cow sheds, and milk shops, and to all matters under such Acts and Orders in connection with dairies, cow sheds, and milk shops ;—

Also to carry out and enforce the powers and duties of this Council under the Milk and Dairies (Consolidation) Act, 1915 ;—



Also to carry out the powers of the Council under sections 51 and 52 of the Manchester New Streets Act, 1853, with respect to the discontinuance of slaughter-houses which are nuisances ;—

Also to carry into effect such of the provisions of the Alkali, &c., Works Regulation Act, 1906, as are exercisable by the Corporation as a sanitary authority under that Act ;—

Also to carry out and enforce the powers and duties of the Corporation under the Factory and Workshop Acts, 1901 to 1911, the Employment of Women Act, 1907, and Part II. of the Police, Factories, &c. (Miscellaneous Provisions) Act, 1916, also under the Bye-laws with respect to the provision of means of escape in case of fire, made by the Council on June 4th, 1913 [Council Minutes, 1912-13, page 486] ;—

Also to carry out and enforce the powers and duties of the Council under the Shops Acts, 1912 and 1913, and the Orders and Regulations thereunder ;—

Also to enquire into, and report upon, the dilapidated or insanitary dwelling-houses within the City, especially such as are situated in courts approached by narrow or covered passages, and those in *cul-de-sac* streets, with a view to their improvement or removal ; and also to recommend the purchase, on economical terms, of such as would provide sites for open spaces and playgrounds in densely populated neighbourhoods ;—

Also to carry into effect within the City the several provisions contained in sections 45 to 48 [Prohibiting use of cellars as dwelling-houses] of the Manchester New Streets Act, 1853, section 41 [Declaring buildings unfit for human habitation] of the Manchester Corporation Waterworks and Improvement Act, 1867, and section 24 [Rooms over privies, &c., not to be used as dwelling or sleeping rooms] of the Public Health Acts Amendment Act, 1890 ;—

Also to carry into effect the provisions of Parts I. and II. of the Housing of the Working Classes Act, 1890, as amended by the Housing of the Working Classes Act, 1903, and the Housing, Town Planning, &c., Act, 1909 and 1919 (so far as the same can be delegated to a Committee), the unrepealed portions of the Housing of the Working Classes Act, 1885, and the Small Dwellings Acquisition Acts, 1899 and 1919, and the Orders under those respective Acts, subject to the condition that the acts of the Committee shall be submitted to the Council for confirmation or otherwise, and that all their proceedings involving the expenditure of money be specially reported to this Council ;—

Also to carry into effect the provisions of the Manchester (Artizans) Order, 1890, confirmed by the Local Government Board's Provisional Order Confirmation (Artizans and Labourers' Dwellings) Act, 1890, of the Manchester Dwellings Reconstruction Scheme, 1891.

Also to carry out the duties and powers of the Corporation connected with the provision of accommodation for persons of the labouring or working classes to be displaced by street improvements effected or to be effected under compulsory powers ;—

That the duties of the Council as the Local Education Authority, or of the Education Committee, in regard to the provision of dwellings for housing persons of the labouring or working classes rendered necessary by all existing and future Acts of Parliament, confirming Provisional Orders which have authorised or shall authorise, and also all Acts which authorise or shall authorise, the compulsory acquisition, for the purposes of the Education Acts, of dwelling-houses occupied by persons belonging to the labouring or working classes, shall be, and the same are, hereby delegated to the Public Health Committee, with instructions from time to time to prepare and submit to this Council the necessary schemes for carrying out such duties ;—

Also to carry out the following resolution adopted by the Council on September 6th, 1916 [Council Minutes, 1915-16, p. 394] ;—

That the Council do exercise, in suitable cases, the powers contained in section 19 (Powers of Sanitary Authorities in connection with the

Storage of Furniture) of the Local Government (Emergency Provisions) Act, 1916, and that the subject be and is hereby referred to the \*Sanitary Committee with authority to carry out the provisions of the section.

And the said Committee shall have, and the Council hereby delegate to the said Committee, all and every the powers, authorities, and discretion, relating to the matters and purposes aforesaid, which have been given to, or are now reposed in, the Council by the said Acts, or any Acts extending or amending the same respectively ;—

And the said Committee are hereby authorised to carry out the instructions heretofore given to the Sanitary Committee, or which may, from time to time be given to the Public Health Committee by this Council.

That until the Housing Committee is duly constituted the Public Health Committee be instructed to carry on the duties assigned to the Housing Committee.

1919.

NUMBER OF NOTICES ISSUED FOR ABATEMENT OF NUISANCES UNDER THE  
VARIOUS LOCAL ACTS AND BYE-LAWS.

Act of Parliament	Work required to be done	No. of Notices Issued
Manchester Police Act, 1844 (Section 86)	Cleanse and limewash houses	136
„ „ „	„ „ (privies)	10
Manchester Corporation Waterworks and Improvement Act, 1867 (Section 42) and 1869 (Section 34)	Repairs to privies, etc. ...	417
Manchester Corporation Waterworks and Improvement Act, 1869 (Section 29)	Renew defective downspouts and gutters	*904
Manchester Corporation Waterworks and Improvement Act, 1869 (Section 31)	Discontinue keeping swine .	...
Manchester New Streets Act, 1853 (Section 41)	Repair or flag surfaces of yards and passages	*678
Manchester Corporation Act, 1891 (Section 38)		
Manchester Improvement Act, 1845 (Section 46)	Open, cleanse, and repair drains	1,017
Not issued under any Act of Parliament...	Preliminary notice for general repairs	*3,174

NOTE.—The majority of the notices issued have been complied with, with the exception of the groups marked with an asterisk, and in these cases, owing to the cost and shortage of material, a considerable number have been allowed to stand over, but all the urgent cases have been insisted upon. Many of the preliminary notices have been complied with, and of the remaining number the worst cases have been referred to the Housing Committee to be dealt with under the Housing and Town Planning Act, 1919.

\* Now Public Health Committee.

BYE-LAWS *re* HOUSES LET IN LODGINGS.

TABLE SHOWING THE NUMBER OF LODGING-HOUSES IN THE CITY, THE NUMBER OF VISITS TO SUCH HOUSES, AND THE NUMBER OF CASES REPORTED FOR OFFENCES AGAINST THE BYE-LAWS.

Number of Lodging-Houses on the Register	Number of Visits		Total Number of Visits	Number of Cases Reported to Committee for Offences	Number ordered to be Summoned	Number Cautioned by Committee	Minor Offences Cautioned by Deputy Superintendent
	Day	Night					
2,125	21,229	428	21,657	170	159	11	92

TABLE SHOWING THE NUMBER OF CASES IN WHICH MAGISTERIAL PROCEEDINGS WERE TAKEN AND THE RESULT OF SAME.

Description of Offence	Number of Summonses taken Out	Number of Persons Fined with Costs	Number of Persons Ordered to Pay Costs only	Number Adjourned	Number Excused, Dismissed, or Withdrawn	Amount of Fines Imposed	Amount of Costs Ordered to be Paid
						£ s. d.	£ s. d.
Lodging-houses in a dirty state ... ..	78	38	3	3	34	12 12 6	0 16 0
Lodging-houses overcrowded ... ..	35	18	11	1	5	6 7 6	2 11 0
Mixing of sexes ... ..	23	10	11	1	1	3 5 0	2 6 0
Using kitchen and unregistered room as sleeping rooms ... ..	9	5	1	1	2	1 10 0	0 4 0
Keeping poultry so as to render premises unwholesome ... ..	8	4	2	...	2	1 15 0	0 8 0
Neglecting to furnish particulars of lodging-houses ... ..	4	1	2	...	1	0 5 0	0 8 0
Sleeping room not effectually screened ... ..	2	...	2	...	...	...	0 8 0
Totals	150	76	22	6	45	25 15 0	7 1 0

## DAIRIES, MILKSHOPS AND COWSHEDS ORDERS.

TABLE SHOWING THE NUMBER OF DAIRIES, MILKSHOPS, AND COWSHEDS, AND THE NUMBER OF COWS KEPT IN THE CITY ; THE NUMBER OF VISITS TO SAME, AND THE NUMBER OF CASES REPORTED FOR OFFENCES AGAINST THE REGULATIONS.

Number of Dairies and Milkshops on the Register	Number of Cow-keepers on the Register	Number of Cows Kept	Number of Visits	Number of cases reported for Offences against the Regulations	Number Summoned before the Magistrates	Number Cautioned by Committee
2,202	80	1,278	5,266	5	3	2

## MAGISTERIAL PROCEEDINGS.

Offence	Number of Sum-mones taken out	Number Fined	Number ordered to Pay Costs	Amount of Fines Imposed	Amount of Costs ordered to be Paid
Having Milkshops in a dirty state ... ..	2	1	1	£ s. d. 1 0 0	s. d. 4 0
Not having painted over the door of shop "Registered for the Sale of Milk" ... ..	1	...	1	...	4 0
Total ... ..	3	1	2	1 0 0	8 0

## ICE CREAM

(Proceedings taken under Manchester Corporation (General Powers) Act, 1899).

TABLE SHOWING THE NUMBER OF ICE CREAM MANUFACTURERS IN THE CITY, THE NUMBER OF VISITS MADE, AND THE NUMBER REPORTED FOR OFFENCES AGAINST THE ACT (SECTION 18).

Number of Ice Cream Manu-facturers on the Register	Number of Visits	Number of Cases Reported for Offences	Number Summoned before the Magistrates	Result of Magisterial proceedings to Pay Costs
489	1,150	3	3	s. d. *12 0

\* Offence.—Not taking proper precautions to prevent contamination during manufacture.



The arrangements for Chemical and Bacteriological Work during the year 1919 were as follows :—

#### 4. *Chemical and Bacteriological Work.*

The work done under the Sale of Food and Drugs Acts, the Margarine Acts, and the Milk and Cream Regulations of the Local Government Board, 1910, was carried out in 1919 by the Public Analyst, Mr. Estcourt. Mr. Estcourt resigned his position in the present year, and Mr. Harri Heap, M.Sc., was appointed Public Analyst, on the understanding that his work was carried on in the Public Health Laboratory and that he would continue to give his services to the University as a lecturer, on Professor Delépine's staff, though otherwise, as Public Analyst, he would be responsible direct to the City Council.

The particulars of the work done by the Public Analyst in 1919 are given on page 69.

Any matter of special difficulty, such as the presence of antimony in self-raising flour, or matters requiring intimate contact between the Analyst and the Public Health Office, have been referred to Professor Delépine. In future, such differentiation ceases by virtue of Mr. Heap's appointment.

I have received much assistance also from Mr. R. M. Rowe, of the Public Health Department, who has, at various times, carried out work in connection with the chemical examination of milks, testing of materials for arsenic, testing of waters for lead, examination of samples of air, and other matters.

Bacteriological work, so far as all diseases other than Venereal are concerned, are referred to Professor Delépine by virtue of an agreement given herewith :—

AN AGREEMENT made this eleventh day of August One thousand nine hundred and nineteen Between THE LORD MAYOR ALDERMEN AND CITIZENS OF THE CITY OF MANCHESTER (hereinafter called "the Corporation") of the one part and SHERIDAN DELÉPINE Director of the Public Health Laboratory of the University of Manchester York Place in the said City (hereinafter called "Professor Delépine") of the other part WHEREBY IT IS HEREBY AGREED AND DECLARED between and by the parties hereto as follows :—

1. IN consideration of the guarantee by the Corporation to Professor Delépine of a yearly minimum sum of One thousand four hundred pounds Professor Delépine hereby undertakes to carry out on payment by the Corporation of the fees enumerated in the Schedule annexed to these presents Bacteriological Pathological Chemical and Experimental tests analyses and investigations required by the Corporation (hereinafter referred to as "the said Laboratory Work") such as have been conducted by him in the past for the Public Health Committee (formerly known as the Sanitary Committee) of the Corporation.

2. THE Fees payable for all such tests analyses and investigations as are enumerated in the Schedule annexed\* to these presents shall and will be made according to the scale indicated in such Schedule and shall and will cover all Laboratory expenses connected with the said Laboratory Work including stipends wages rents and repairs of premises apparatus current working expenses printing and stationery and all other expenses whatsoever with the exception

\*Schedule omitted.

of reasonable travelling expenses and expenses in connection with attendances in Court which shall not be deemed to be an essential part of the said Laboratory Work. Provided that in the event of the fees payable to Professor Delépine according to the fixed scale hereinbefore referred to for work done during each period of one year exceeding the said sum of One thousand four hundred pounds *a reduction after the rate of Twenty pounds per centum shall and will be made upon the balance of any sum in excess of One thousand four hundred pounds.*

3. IF after a period of three years should these presents not have been previously terminated it should become possible to reduce expenses in connection with the said Laboratory Work the said fees indicated in the Schedule hereto shall be readjusted so as to give the Corporation the benefit of such reduced expenses.

4. ON every first day of January it shall be lawful for the Corporation and Professor Delépine to make such additions to the Schedule hereto as may be necessary and as may be agreed upon between them to meet the administrative requirements of the Corporation.

5. FOR special researches and serial investigations of an extraordinary nature and not enumerated in the Schedule hereto composition fees shall be arranged from time to time at a scale to be agreed upon by Professor Delépine and the Corporation.

6. THIS Agreement shall be deemed to have come into operation *on the first day of January 1919* and shall remain in force until determined by either party giving to the other six calendar months notice in writing of their or his intention to determine the same at any time.

The Common Seal of the  
Corporation of the City of  
Manchester was hereunto  
affixed in pursuance of an  
Order of the Council of the  
said City in the presence of

WILLIAM KAY,  
*Lord Mayor.*

THOMAS HUDSON,  
*Town Clerk.*



28044

Signed sealed and delivered by  
the before-named Sheridan  
Delépine in the presence of

SHERIDAN DELÉPINE.



E. C. ILIFF,  
Public Health Laboratory,  
Manchester,  
*Secretary.*

The following is a summary of the work done by Professor Delépine during the year

STATEMENT SHOWING, IN QUARTERS, THE BACTERIOLOGICAL WORK  
CARRIED OUT BY PROFESSOR DELÉPINE DURING 1919.

	No. of Examinations made during Quarters ending				
	Mar. 29, 1919	June 28	Sept. 27	Dec. 27	Total
Diphtheria Swabs .. .. .	379	635	878	856	2,748
Blood—Typhoid Bacilli .. ..	124	110	71	78	383
Sputum for Tuberculosis .. ..	375	446	373	444	1,638
Milk—Tuberculosis .. .. .	81	71	162	95	409
„ —Microscopical .. .. .	..	1	..	2	3
„ —Dirt and enumeration of Bacteria .. .. .	3	17	9	13	42
Cerebro-spinal Fever Swabs ..	20	..	..	11	31
Special Sputum Reports (National Service) .. .. .	84	31	..	..	115
Naso-pharyngeal Swabs .. ..	..	17	6	..	23
Miscellaneous .. .. .	..	3	9	14	26
		Including :— 2 Blood Malaria, 1 Urine T.B.	Including :— 1 Faeces, 1 Urine T.B., 1 „ Bact., 1 Jack Tar Pilchards, 1 Blood Film, 3 Water T.B., 1 Blood Vaccine.	Including :— 5 Shaving Brushes, 2 Blood Malaria, 1 Rat (B. Pestis), 1 Sputum (Influenza), 2 Glaxo, 3 Typhoid (Paratyphoid A. & B.).	
Quarterly total ..	1,066	1,331	1,508	1,513	5,418

All work relating to Venereal Disease not otherwise provided for has been transferred to Professor Dean at the University, and a statement thereon will be found in Table IV., at page 146. In addition, the Manchester and Salford Hospital for Skin Diseases, and the Ancoats Hospital, have appointed their own pathologists to carry out the Venereal Diseases work, and have provided laboratories at their respective hospitals.

A considerable amount of bacteriological work is carried out at Monsall Hospital, which possesses an adequate bacteriological laboratory. For a statement of the work carried out at Monsall Hospital see page 234.

Small laboratories are also attached to the Tuberculosis Office and Baguley Sanatorium, and provision for microscopic examination in connection with Venereal Disease is made at the Royal Infirmary (which possesses a good laboratory for general purposes) and at the Lock Hospital. Provision is also made for the examination of sputum at the Crossley Sanatorium and at Abergele Sanatorium, as well as at the Tuberculosis Dispensary.

ACTERIOLOGICAL EXAMINATIONS MADE FOR THE COUNTY BOROUGH OF MANCHESTER  
NG THE YEAR 1919, PUBLIC HEALTH LABORATORY, UNIVERSITY OF MANCHESTER.

Month	Diphtheria			Typhoid			Tuberculosis					
							Sputum			Milk		
	+	—	Total	+	—	Total	+	—	Total	+	—	Total
January ...	21	145	166	8	20	28	37	104	141	1	22	23
February ...	10	159	169	25	58	83	19	84	103	3	19	22
March ...	5	39	44	6	7	13	24	109	133	4	32	36
April ...	20	117	137	1	7	8	27	106	133	1	17	18
May ...	24	225	249	20	50	70	33	162	195	3	32	35
June ...	23	226	249	12	20	32	32	87	119	3	27	30
July ...	25	200	225	6	17	23	30	106	136	2	44	46
August ...	25	301	326	5	18	23	26	110	136	6	49	55
September	47	280	327	5	20	25	18	83	101	5	56	61
October ...	32	256	288	2	18	20	15	95	110	...	7	7
November	32	297	329	6	34	40	25	139	164	5	48	53
December...	25	214	239	4	14	18	21	149	170	6	31	37
Total ...	289	2,459	2,748	100	283	383	307	1,334	1,641	39	384	423

Total specimens enumerated above—5,195. Other investigations 182, *re* cerebro spinal fluid, milk, urine and fæces, water, etc. National Service—115 Sputum (19+). Monsall Hospital, 23 specimens—milk, water, swabs, fæces, and urine. Abergele Sanatorium, specimens of milk. Baguley Sanatorium, 6 specimens—diphtheria, typhoid, milk, sputum.



### SANITARY ACCOMMODATION AND OTHER SERVICES.

### HOSPITAL ACCOMMODATION.

In the following statement no account is taken of out-patient treatment or of convalescent homes. In many hospitals out-patient treatment is the chief activity, for example, at Venereal Disease Centres and at the Manchester and Salford Hospital for Skin Diseases, and at all the large hospitals the out-patient department does a large and important part of the work. As regards the institutions under the Guardians of the Poor, corresponding to the out-patient departments of voluntary hospitals, we have the District Poor Law Medical Officers to the number of 26. The corresponding medical work in the case of fevers is carried out by the medical profession generally, while, so far as admission of young children to special hospitals is concerned, it devolves largely on the Child Welfare Centres.

The beds provided by voluntary hospitals may be classified as follows :—

Royal Infirmary: male, 334; female, 274; cots, 15.

The departments of internal work carried on are medical, surgical, gynaecological, accidents, ear, throat and nose, eyes, skin, isolation (8 male, 7 female beds).

The central branch for accidents in Parker Street, Piccadilly, has 55 beds.

The following details show the scope of the work:—

MANCHESTER ROYAL INFIRMARY.

[illegible]

Attached to each ward are three side wards, one double, containing three beds, and two small, containing one bed each. All these are included in the above number.

Barnes Convalescent Home, Cheadle (Royal Infirmary), 136 beds.

The Royal Lunatic Asylum, Cheadle, is governed by the Royal Infirmary Board, and contains 430 beds.

Ancoats Hospital has 114 beds and cots.

The Jewish Hospital has 37 beds, medical and surgical, and two cots. The 37 beds are 16 for males, 21 for females, including in the latter gynæcological beds.

The Manchester Children's Hospital, at Pendlebury, has 188 beds for children from birth up to 16.

The Ear and Eye Hospital, St. John Street, has 14 beds.

The Ear Hospital, Grosvenor Square, has 24 beds.

The Manchester and Salford Hospital for Diseases of the Skin has 30 beds.

St. Mary's Hospital is in two sections :—

*Whitworth Street* has 55 beds for difficult maternity cases and 50 cots.

*High Street* has 90 gynæcological beds and 25 cots.

The Northern Hospital has 22 gynæcological beds and 48 cots and beds for children from birth up to 16. Isolation ward for children, 4 beds ; women's private ward, 2 beds.

The Manchester Maternity Home, High Street, has 20 beds for maternity cases.

Mrs. MacAlpine's Home, Fallowfield, has 18 maternity beds.

The Lock Hospital has 36 beds.

The Northern Counties Hospitals for Incurable Cases, at Mauldeth and Walmersley, have 125 beds.

There are forty beds at the Manchester Babies' Hospital, which is run by the medical women in Manchester, for wasting diseases in infants under one year of age. Of these the Manchester Corporation are entitled to fill 18 beds under their Maternity and Child Welfare Scheme.

The Christie Hospital for Cancer has 30 beds.

The Manchester Royal Eye Hospital has 133 beds, and special provision is made for the treatment of cases of ophthalmia neonatorum.

The Manchester Consumption Hospital has two institutions, the Crossley Sanatorium, at Delamere Forest, and Bowdon Sanatorium. The Crossley Sanatorium has 100 beds, of which 62 are allotted to the Manchester Scheme. The Bowdon Sanatorium has 50 beds. All of these, however, are not utilised for Tuberculosis of the Lungs.

*Manchester Corporation.*

The number of beds used at present for the treatment of Tuberculosis is :—

Advanced cases, Baguley Sanatorium .. ..	308
„ Monsall Hospital .. ..	28
Early cases, Crossley Sanatorium .. ..	62
„ Abergele Sanatorium .. ..	46
Surgical cases, Abergele Sanatorium .. ..	10
	<hr/>
	454
	<hr/>

Swinton House, under the Education Authority, provides excellent treatment for school children suffering from chronic surgical conditions requiring expectant treatment, amongst whom from 50 to 80 cases are tuberculous, the total number of beds being 120. They have also 40 beds for pre-tuberculous cases at their Summerseat Home at Bury. In addition, a number of cases are treated in the Voluntary Hospitals and in Convalescent Homes.

It is proposed to provide 500 beds for children at Abergele Sanatorium, and 40 additional beds for adult cases of early Pulmonary Tuberculosis.

The Monsall Fever Hospital provides 600 beds, which are used for Enteric Fever, Scarlet Fever, Diphtheria, Erysipelas, Typhus Fever, Puerperal Sepsis, Cerebro spinal Fever, Tuberculosis, Wasting Children, and, if there is room, for Measles.

Clayton Hospital has 50 beds for Smallpox. Owing to the gradual constriction of the space round the Hospital, provision will soon be required elsewhere.

The Guardians of the Poor deal with all classes of disease, and extend their activities into every department of medical work. An excellent account of their institutions is given by Mr. James Macdonald in his Annual Report, dated 31st March, 1919, from which I extract the statement of accommodation.

*Booth Hall Infirmary (for children).*

Accommodation—Medical, Boys, 182	Girls, 182	Total, 364
Surgical, „ 34	„ 34	„ 68

*Crumpsall Infirmary.*

	Accommodation			
	Men	Women	Children	Total
Medical Wards .. .. .	406	356	..	762
Surgical .. .. .	143	123	..	266
Mental .. .. .	292	268	8	568
Venereal .. .. .	30	100	25	155
Maternity .. .. .	..	48	..	48
Children .. .. .	..	..	60	60
Total .. .. .	871	895	93	1,859

*Delaunay's Road Institution.*

	Accommodation			
	Men	Women	Children	Total
General .. .. .	84	84	19	187
Mental' .. .. .	85	112	..	197
Total .. .. .	169	196	19	384

*Withington Hospital.*

## Accommodation.

Medical Wards .. .. . 1,280

Surgical „ .. .. . 1,633

Mental „ .. .. . 91

Total .. .. . 3,004



This institution was used during the war as a Military Hospital.

*The Colony for Epileptics, Langho.*

There is accommodation for 240 men and 240 women.

The average numbers maintained during the year 1918-1919 fell considerably below the above figures, and must now have fallen much below the accommodation.

It appears a pity that the spare accommodation should not be placed at the disposal of the Corporation to be administered by them.

The Board of Guardians are, however, quite ready to treat cases of illness for the Corporation.

The above may be summarised thus:—

Provision of beds and cots in voluntary hospitals .. .. .	2,399
Provision by the Manchester Corporation, say .. .. .	1,210
Provision by the Board of Guardians, excluding the Langho Colony for Epileptics .. .. .	5,679
Total .. .. .	9,288

The following are the numbers of out-patients and in-patients treated at the various hospitals during the year 1919. No attempt has been made to separate patients coming from outside Manchester from those resident in the City, as this could not be done without a great expenditure of labour.

	1919.	Out-patients	In-patients
Royal Infirmary .. .. .	40,999	11,308	
Ancoats Hospital .. .. .	25,269	2,134	
Jewish Hospital, 1918-1919 .. .. .	6,235	612	
Manchester Children's Hospital, 1918 .. .. .	13,219	1,865	
Manchester Ear Hospital, Grosvenor Square, 1918-1919 .. .. .	4,132	434	
Manchester and Salford Hospital for Skin Diseases .. .. .	12,654	408	
St. Mary's Hospitals .. .. .	9,577	4,173	
„ „ Visited at Home .. .. .	1,232	..	
Manchester and Salford Lock Hospital .. .. .	1,787	101	

1919

	Out-patients	In-patients
Northern Counties Hospital for Incurables ..	128	..
Christie Hospital for Cancer, 1918-1919 .. ..	98	..
Northern Hospital .. .. . (new)	5,061	(new) 816
Manchester Royal Eye Hospital .. .. .	36,758	1,853
Manchester Hospital for Diseases of the Chest and Throat .. .. .	6,413	..
Tuberculosis Dispensary .. .. .	2,008	..
Baguley Sanatorium .. .. .	..	1,145
Monsall Hospital .. .. .	..	2,502
Crossley Sanatorium .. .. .	..	176
Bowdon „ .. .. .	..	297
Abergele Sanatorium .. .. .	..	182
Clayton Hospital .. .. .	..	20

*Schools.*

Swinton House .. .. .	..	167
Summerseat .. .. .	..	64

*Manchester Board of Guardians.*

Crumpsall Infirmary .. .. .	..	8,871
Withington Hospital .. .. .	..	423

The accommodation at the voluntary hospitals is fully utilised, and there is some need for additional beds, especially at the Jewish Hospital, the Children's Hospital, and the Babies' Hospital. The provision of 55 beds at the St. Mary's Hospital, Whitworth Street, is for complicated cases, and there is urgently needed accommodation for lying-in women of an uncomplicated character, to be supervised by the Maternity and Child Welfare Department.

Certain normal cases are confined at the Maternity Home, High Street, 20 beds, and at the MacAlpine Home, Fallowfield, 18 beds. But these in no way meet the need mentioned.

Additional provision is also required for young children suffering from malnutrition. Convalescent homes are required in connection with the Maternity and Child Welfare Scheme. The question of convalescence will be considered hereafter.

# WORK OF THE THREE SPECIAL INSPECTORS ATTACHED TO THE MEDICAL OFFICER OF HEALTH.

## STATEMENT SHOWING WORK OF INSPECTOR HIGGINBOTHAM DURING 1919.

Food Contractors to H.M. Forces	Inspections	Visits with L.G.B. Inspector	Interviews with M.O.H. <i>re same</i>	Note
182	134	9	7	This work practically ceased the cessation of hostilities.

	Inspections and Re- inspections	Cows In- spected	Samples obtained	Interviews with M.O.H.	Interviews with Vet. Surgeon	Visits to Joddrell Street	Visits to Yodanis Place
Country Farms ... ..	7	188	20	7	12	8	
City Farms ... ..	5	44	3	4	...	...	
Milk Samples from Child Welfare Centres, etc. ... ..	...	...	5	...	...	1	

	Investigations	Interviews with M.O.H. <i>re same</i>	Note
Antimony Poisoning in Self- raising Flour ... ..	23	6	This case was fully reported in 1918.

Child Welfare Enquiries	Interviews with M.O.H. <i>re same</i>	Interviews with Miss Se
1,162	12	9

Applications for Fee Enquiries (Midwives' Acts, 1902 and 1918)

366

	Inspections and Reports	M.O.H. <i>re same</i>	Piggery Reports	M.O.H. <i>re same</i>
Miscellaneous Reports ... ..	133	50	9	2

STATEMENT SHOWING WORK OF INSPECTOR HIGGINBOTHAM DURING 1919—*continued*.

	Visits and Revisits to to Contacts	Over- looked Case	Influenzal Pneumonia Cases	M.O.H. <i>re same</i>
ctious Diseases ... ..	382	1	11	6
using Inspections in Hulme and Red Bank	M.O.H. <i>re same</i>			
476	5			
onstrations of Milk Utensil Steriliser	Inspection of Dairies		M.O.H. <i>re same</i>	
16	9		3	

## STATEMENT SHOWING WORK OF INSPECTOR PRICE DURING 1919.

	Inspec- tions and Re- inspec- tions	Cows In- spected	Samples obtained	Inter- views with M.O.H.	Inter- views with Vet. Surgeon	Visits to Joddrell Street	Visits to York Place
entry Farms ... ..	4	65	19	...	8	...	} 36
Farms ... ..	106	1,253	18	...	4	...	
Hospitals and Day Nurseries	13	...	25	...	...	...	
d Welfare enquiries ...	342	...	...	...	...	...	...
ctors' Fees enquiries, Mid- wives Acts, 1902 and 1918	117	...	...	...	...	...	...
ctious Diseases ... ..	63	...	...	...	...	...	...
using Inspections in Hulme and Red Bank ... ..	534	...	...	...	...	...	...
ges and Hospitals for onvalescents ... ..	27	...	...	...	...	...	...
ances ... ..	8	...	...	...	...	...	...
infested Premises ... ..	34	...	...	...	...	...	...
ellaneous Reports ... ..	124	...	...	...	...	...	...
istical Work ... ..	50 days	...	...	...	...	...	...
ical Officer of Health ...	...	...	...	108	...	...	...
atoir ... ..	3	...	...	...	...	...	...



## STATEMENT SHOWING WORK OF INSPECTOR LORD DURING 1919.

	Inspec- tions and Re- inspec- tions	Cows In- spected	Samples obtained	Inter- views with M.O.H.	Inter- views with Vet. Surgeon	Visits to Joddrell Street	Visits to York Place
Country Farms ... ..	5	83	6	...	10	...	} 36
City Farms ... ..	77	1,072	10	...	...	...	
Hospitals and Day Nurseries	64	...	33	...	...	...	
Child Welfare enquiries ...	233	...	...	...	...	...	
Doctors' Fees enquiries, Mid- wives' Acts, 1902 and 1918	77	...	...	...	...	...	...
Infectious Diseases ... ..	390	...	...	...	...	...	...
Housing Inspections in Hulme and Red Bank ... ..	432	...	...	...	...	...	...
Nuisances ... ..	81	...	...	...	...	...	...
Rat infested Premises ... ..	87	...	...	...	...	...	...
Miscellaneous Reports ... ..	117	...	...	...	...	...	...
Statistical Work ... ..	59 days	...	...	...	...	...	...
Medical Officer of Health ...	...	...	...	165	...	...	...
Food Contractors to H.M.'s Forces ... ..	4	...	...	...	...	...	...

## STABLES.

BY DR. W. ST. C. McCURE.

During 1919 plans of 18 new stables were referred to the Medical Officer of Health by the City Architect. Two were disapproved. The remainder were accepted subject to the fulfilment of certain requirements.

Forty visits were made to existing stables in the City by one of the assistants to the Medical Officer of Health, and in each of these cases a specification of the work required in order to remedy defects was prepared and sent to the owner and occupier. The following is a brief statement of the number of statutory and other notices served upon owners, and the result:—

Notices served under Public Health Act, 1875	.. ..	28
Other Orders sent to Owners	.. ..	23

—  
51

Notices complied with	..	..	..	..	..	..	..	17
Work in progress	..	..	..	..	..	..	..	12
Stables disused	..	..	..	..	..	..	..	15
Nothing done	..	..	..	..	..	..	..	7
								<hr/> 51

In July and August systematic visits were made by the District Inspectors to all stables in the City with a view of ensuring the frequent removal of manure. When necessary, action was taken under Section 49 of the Public Health Act, 1875, and arrangements were made with the Cleansing Department to remove the manure when the occupier was in default.

## ADMINISTRATION OF THE RATS ORDER, 1918.

BY DR. W. A. YOUNG.

The Rats Order dated 28th August, 1918, was made by the Food Controller under the Defence of the Realm Regulations, and gave Local Authorities power to require owners and occupiers to take effective steps for the destruction of rats where preventable damage and destruction to foodstuffs was being caused within their area, and also to take steps to prevent infestation of premises.

The administration of the Order in Manchester was at first undertaken by the Local Foodstuffs Committee, who, after making certain investigations as to the nature and extent of rat infestation in the City, passed a resolution on 25th June, 1919, suggesting that the work be carried out by the Public Health Committee.

Attention was again directed to the subject by the visit of a Board of Agriculture Inspector to the Medical Officer of Health on 12th September, 1919, when he called attention to the presence of rats in the City.

It was felt that from a public health as well as economical standpoint the destruction of rats was desirable, and the work has since been carried out by the Public Health Committee under the direction of the Medical Officer of Health and Dr. Young.

The Board of Agriculture intimated that a National Rat Week was being held from October 20th to 27th, 1919, and requested every local authority throughout the country to adopt measures for the destruction of rats within its area before the winter migration set in.

At a meeting of the Nuisance Sub-Committee, 17th October, it was resolved that the sum of £50 be placed at the disposal of the Medical Officer of Health for him to take the necessary steps for the holding of a rat week in Manchester

from October 20th to 25th, 1919. Handbills, large posters, and press notices were issued, impressing upon owners and occupiers of infested premises the necessity of taking concerted action for the destruction of rats.

Infested premises were visited by Sanitary Inspectors, pamphlets were left dealing with methods of destruction which could be adopted, and subsequent visits were paid to ascertain results.

The expenses incurred amounted to approximately £15.

From the information obtained as a result of the above measures it was evident that certain parts of Manchester were badly infested, and the Local Authority arrived at the conclusion that for a successful and continued campaign against rats it would be necessary for a whole-time Rats Executive Officer to be appointed:

The Board of Agriculture also recommended that such a course be adopted, and intimated that two further rat weeks were to be held during the winter, the suggested dates being from December 29th to January 5th and from February 23rd to March 1st, 1920. On the 21st November a special Sub-Committee was appointed to deal with matters connected with the destruction of rats, and on the 18th December the Nuisance Sub-Committee recommended the appointment of a Rats Executive Officer.

On December 23rd the Public Health Committee confirmed this recommendation and passed an emergency estimate of £191 to carry out the work to the end of the financial year ending March 31st, 1920.

Pending the appointment of a Rats Executive Officer, it was arranged that Inspector Priestley should carry out the duties. This he did with his usual energy and ability, and with his assistance the scheme of working now adopted has been drawn up.

Arrangements were made towards the end of December for a rat week to be held in Manchester during January.

The Rats and Mice (Destruction) Act, 1919, which conferred additional powers upon Local Authorities, became operative on January 1st, 1920, and the Rats Order was revoked on March 7th, 1920.

It seems unfortunate that "owners" of property are not included under the Act, as it may well be deemed unreasonable to ask the occupiers to carry out the rat-proofing of old buildings which in many instances will entail a good deal of expense. In such property any measures which do not include efficient rat-proofing offer little hope of success.

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## MONSALL HOSPITAL.

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REPORT BY DR. FLETCHER, Medical Superintendent.

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### REPORT FOR 1919.

The number of patients admitted was 2,328, an increase of 595 on the preceding year.

The average daily number of patients in hospital was 287.8, as against 243.0 in 1918.

The average length of stay in hospital for all patients was 43.9.

The average daily number of resident officers, nurses, and servants was 153.

A block for Pulmonary Tuberculosis was opened on September 16th and closed on December 19th. During this period 43 patients were admitted, of whom 34 were discharged and 9 died, giving a case mortality rate of 20.9 per cent.

The fatality rate for all cases was 7.5 per cent., as against 6.0 in 1918. Thirty-three of the deaths occurred within 48 hours of admission.

Three nurses contracted Diphtheria, one Enteric Fever, five Scarlet Fever, and one Mumps. All made good recoveries.

Eleven probationers left during or at the end of their trial months; nineteen finished their training, six of whom proceeded to a General Hospital.

Two nurses left for private nursing.

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### SCARLET FEVER.

The number of patients admitted was 1,260, which is 588 more than in 1918.

The type of disease, generally speaking, was mild; 26 deaths occurred, giving a fatality rate of 2.5 per cent., as against 2.7 in 1918. The rate was higher in females than in males.

Four patients died within 48 hours of admission.

The average stay in hospital for patients who recovered was 52.4 days; for fatal cases, 12.2.

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## POST-SCARLATINAL DIPHTHERIA AND DIPHTHERIA "CARRIERS."

One case of Post-Scarlatinal Diphtheria occurred.

### "RETURN" CASES.

The number of alleged infecting cases, which gave rise to 23 secondary cases out of a total of 1,005 discharges, was 22. This gives a "return" case rate of 2.2 per cent., as against 2.0 in 1918.

If the interval which elapsed between the arrival home of the infecting patient and the onset of the "return" case be limited to a month, the rate becomes 1.7 per cent., as against 1.8 in 1918.

The average number of days ill of the infecting cases was 56.7, and the average interval in days between the return home of the patient and the onset of the "return" case 15.7, the extremes being 3 and 53.

Fifteen of the 22 infecting patients had uncomplicated attacks.

## DIPHTHERIA.

Three hundred and fifty-seven patients were admitted, being 102 less than in 1918.

Thirty-six deaths occurred, giving a fatality rate of 10.5 per cent., as against 10 in 1918. The rate was higher in females than in males.

Fourteen of the deaths took place within 48 hours of admission.

The larynx was found to be involved on admission in 15.0 per cent. of the cases.

Tracheotomy was performed on 31 patients, of whom 11 died, giving a fatality rate of 35.5 per cent. Of the deaths, 9 occurred within 48 hours of admission.

The average stay in hospital for patients who recovered was 44.1 days; for fatal cases, 11.

## ENTERIC FEVER.

The number of admissions was 89, or 38 more than in 1918.

Eighteen patients died, giving a fatality rate of 22.2 per cent., as against 12 in 1918.

Two deaths occurred within 48 hours of admission.

The average stay in hospital for patients who recovered was 40.5 days; for fatal cases, 18.6.

Before discharge from hospital the stools and urine of all patients were submitted to bacteriological examination to ascertain the absence of the Typhoid Bacillus. Of 108 cases, 105 gave negative results and 3 positive, the urine being positive in each.

#### ERYSIPELAS.

The admissions numbered 161, an increase of 29 on the previous year.

Nineteen deaths occurred, giving a fatality rate of 12.1 per cent., as against 3.4 in 1918.

The average stay in hospital for patients who recovered was 23.1 days ; for fatal cases, 10.

#### PUERPERAL FEVER.

One hundred and thirteen patients were admitted, an increase of 56 on 1918.

The infant was in 52 instances admitted with the mother.

Twenty-three patients died, giving a fatality rate of 21.6 per cent. Six deaths took place within 48 hours of admission.

The average stay in hospital for patients who recovered was 32.5 days ; for fatal cases, 11.8.

#### CEREBRO-SPINAL FEVER.

Nine patients were admitted, of whom 6 recovered, 3 died, giving a fatality rate of 33.3 per cent., as against 25 per cent. in 1918.

#### OTHER DISEASES.

In this class are included cases of Measles, Rubella, and Varicella, patients whose illness was incorrectly diagnosed, certain cases of non-notifiable disease, and infants admitted with their mother.

Thirty-two deaths occurred, giving a fatality rate of 9.5 per cent. Eight deaths took place within 48 hours of admission.

The average stay in hospital for patients who recovered was 36.7 days ; for fatal cases, 10.1.

#### MALNUTRITION CASES.

The ten cots at the Crèche were full practically the whole year with children suffering from Malnutrition.

Nine cases were in hospital at the end of 1918, 9 cases were admitted, 9 were discharged in a good state of health, and 9 remained at the end of the year.

## LABORATORY REPORT.

All the necessary media were prepared by the Dispenser at the hospital. The number of Bacteriological examinations performed was as follows :—

Cultures from Nose, Throat, and Ear .. .. .	6,038
„ Vagina .. .. .	7
„ Uterus .. .. .	95
Widal reactions .. .. .	127
Fluid from Knee .. .. .	1
Bac. Enteritidis reactions .. .. .	6
Typhoid Stools .. .. .	105
„ Urine .. .. .	108
Examination of Spinal fluid .. .. .	43
„ Pus .. .. .	3
„ Sputum .. .. .	61
„ Hairs .. .. .	1
Smears from Throat .. .. .	39
	<u>6,634</u>

## STATISTICAL REPORT FOR THE YEAR 1919.

Remaining in hospital on January 1st, 1919 .. ..	174
Patients admitted during 1919 .. .. .	2,328
	<u>2,502</u>
Recovered and died during 1919 .. .. .	2,044
Remaining in hospital on December 31st, 1919 .. ..	458
	<u>2,502</u>
Total number of deaths during 1919 .. .. .	154
Net mortality .. .. .	7.5
Of the deaths, 33 occurred within 48 hours of admission	21.6
Daily average number of patients .. .. .	287.8
„ „ officers, nurses, and servants	151
Average stay of patients (in days) .. .. .	43.9

TABLE SHOWING NUMBERS OF VARIOUS DISEASES TREATED, 1919.

DISEASE	Remaining in Hospital, Jan. 1st 1919.	Admitted	Discharges and Deaths	Remaining in Hospital, Dec. 31st
Scarlatina .....	95	1260	1031	324
Diphtheria .....	50	357	341	66
Enteric Fever.....	1	89	81	9
Erysipelas .....	5	161	150	16
Puerperal Fever .....	5	113	106	12
Other Diseases .....	18	348	335	31
<b>Total.....</b>	<b>174</b>	<b>2328</b>	<b>2044</b>	<b>458</b>

## COMPLICATIONS IN SCARLET FEVER.

Complication	Number	Percentage
Rhinorrhœa in Convalescence..	92	8.9
Otorrhœa .....	107	10.4
Nephritis .....	5	0.5
Albuminuria of Convalescence..	63	6.1
Adenitis and Abscess .....	7	0.7
Endocarditis .....	2	0.2



## DIPHTHERIA.

AGE OF PATIENTS	MALE			FEMALE			TOTAL		
	Cases	Died		Cases	Died		Cases	Died	
Under 1 year ...	1	1		2	...		3	1	
1 to 2 years ...	5	2		10	3		15	5	
2 " 3 " ...	11	2		14	2		25	4	
3 " 4 " ...	15	1		14	2		29	3	
4 " 5 " ...	20	3		19	4		39	7	
5 " 10 " ...	61	5		75	8		136	13	
10 " 15 " ...	24	1		25	1		49	2	
15 " 20 " ...	9	...		8	1		17	1	
20 " 25 " ...	5	...		10	...		15	...	
25 " 30 " ...	2	...		...	...		2	...	
30 and over ...	3	...		8	...		11	...	
			Mor- tality percent.			Mor- tality percent.			Mor- tality percent.
Total .....	156	15	9.6	185	21	11.3	341	36	10.5

14 deaths occurred within 48 hours of admission.  
Of the deaths, 6 were complicated by other co-existent diseases.

## TRACHEOTOMY CASES.

AGE OF PATIENTS	NO. OF PATIENTS	DIED	MORTALITY PER CENT.
Under 1 year .....	1	1	100
1 to 2 years .....	5	4	80.0
2 " 3 " .....	5	3	60.0
3 " 4 " .....	4	...	...
4 " 5 " .....	8	1	12.5
5 " 10 " .....	7	2	28.6
10 " 15 " .....	...	...	...
15 and over .....	1	...	...
Total .....	31	11	35.5

Of the deaths, 9 occurred within 48 hours of admission.

## ENTERIC FEVER.

TABLE SHOWING INTERVAL ELAPSING BETWEEN DATE WHEN PATIENT WAS FIRST SEEN BY A MEDICAL MAN AND THE DATE OF ADMISSION TO HOSPITAL, ALSO SHOWING DAY OF DISEASE ON ADMISSION.

DAYS' INTERVAL	Interval between admission and date when Patient was first seen by a Medical Attendant		Day of disease on admission	Day of disease on admission	
	All Cases	Deaths		All Cases	Deaths
Sent in on same day...	6	2	1st day ... ..	...	...
1 day interval ...	2	...	2nd „ ... ..	...	...
2 days' „ ...	2	...	3rd „ ... ..	...	...
3 „ „ ...	3	1	4th „ ... ..	...	...
4 „ „ ...	4	...	5th „ ... ..	1	...
5 „ „ ...	2	1	6th „ ... ..	1	1
6 „ „ ...	5	1	7th „ ... ..	2	...
7 „ „ ...	9	4	2nd week ... ..	35	9
8 „ „ ...	10	2	3rd „ ... ..	29	6
9 „ „ ...	3	1	4th „ ... ..	3	...
10 „ „ ...	4	3	5th „ ... ..	4	1
Over 10 days' interval	31	3	Over 5th week ...	6	1
Total ... ..	81	18	.....	81	18

## OTHER DISEASES.

Certified as	Actual Disease	No.
Scarlet Fever .. ..	Erythema .. .. .	9
	Tonsillitis .. .. .	4
	Measles .. .. .	4
	Nil .. .. .	3
	Urticaria .. .. .	2
	Varicella .. .. .	2
	Influenza ... .. .	1
Carried forward .. .. .		25

Certified as	Actual Disease	No.
	Brought forward .. .. .	25
Scarlet Fever .. ..	Otorrhœa .. .. .	1
	Dermatitis .. .. .	1
	Phthisis .. .. .	1
	Nephritis .. .. .	1
Total 29, or 2·7 per cent. of cases notified.		
Diphtheria .. .. .	Tonsillitis .. .. .	61
	Bronchitis.. .. .	10
	Vincent's Angina .. .. .	7
	Laryngitis.. .. .	6
	Influenza .. .. .	6
	Measles .. .. .	5
	Nil .. .. .	3
	Broncho-Pneumonia .. .. .	2
	Stomatitis.. .. .	1
Total 101, or 22·8 per cent.		
Enteric Fever .. ..	Enteric "Carrier" .. .. .	1
	Pneumonia .. .. .	1
	Nil .. .. .	3
Total 5, or 5·8 per cent.		
Puerperal Fever .. ..	Abortion .. .. .	6
	Femoral Thrombosis .. .. .	1
	Confinement .. .. .	1
	Strangulated Hernia .. .. .	1
	Threatened Abortion .. .. .	1
	Broncho-Pneumonia .. .. .	1
Total 11, or 9·4 per cent.		
Erysipelas .. .. .	Measles .. .. .	1
	Cellulitis .. .. .	1
	Abscess (Head) .. .. .	1
	Impetigo .. .. .	1
	Erythema .. .. .	1
	Ulcerated Leg .. .. .	1
	Carbuncle .. .. .	1
	Callous Ulcer .. .. .	1
	Eczema .. .. .	1
	Septic Wound .. .. .	1
	Mustard Gas Burn .. .. .	1
Total 11, or 6·8 per cent.		

Certified as	Actual Disease (the same or other)	No.
"With Mother" .. ..	"With Mother" .. ..	52
Measles .. ..	Measles .. ..	36
Influenza .. ..	Influenza .. ..	21
Observation .. ..	Nil .. ..	16
Cerebro-spinal Fever ..	Cerebro-spinal Fever .. ..	9
Varicella .. ..	Varicella .. ..	12
Malnutrition .. ..	Malnutrition .. ..	9
Mumps .. ..	Mumps .. ..	5
Cerebro-spinal Fever ..	Tubercular Meningitis .. ..	1
	Nil .. ..	1
	Rubella .. ..	1
	Bronchial Pneumonia .. ..	1
	Influenza .. ..	1
Encephalitis .. ..	Encephalitis .. ..	1
	Cerebro-spinal Meningitis .. ..	1
	Tubercular Meningitis .. ..	1
Rubella .. ..	Rubella .. ..	2
	Urticaria .. ..	1
Malaria .. ..	Malaria .. ..	1
Smallpox .. ..	Smallpox .. ..	1
Enteric "Carrier" ..	Enteric "Carrier" .. ..	1
Influenza .. ..	Dermatitis Herpetiformis .. ..	1
Total 175.		

## STATEMENT re BAGULEY SANATORIUM FOR 1919.

By Dr. R. C. HUTCHINSON, Medical Superintendent.

The Institution contains 318 beds, of which 312 were available throughout the year.

The reduction in the available number of beds is due to the fact that one ward has been converted into a day-room for men pending the erection of a suitable structure for that purpose.

The number of beds available for male patients is 222, whilst those available for females are 90 in number.



On the male side the covered wards accommodate 116 patients, and the open-air block will take 106.

The advanced or feeble cases are admitted to the covered wards, and are transferred to the open block as their condition improves. In the latter 50 beds are reserved for patients undergoing treatment by graded labour, the remainder being used either for cases sent in for diagnosis or as an intermediate block between the covered wards and the graded work block.

All cases suitable for graded work pass through the open-air block before discharge.

The beds for female patients are made up of 30 in a covered ward and 60 in the sanatorium block.

As a rule, the women admitted are suffering from advanced disease—usually two-thirds of the available beds are occupied by patients who are unable to take any active exercise. The problem of occupation for such patients has been partially solved by classes in raffia and basket work, which have been held throughout the winter. The occupation thus provided is light and interesting, and can be easily performed by bed-ridden cases.

As most of the women patients have advanced disease, it has not been possible to initiate any regular scheme of out-door grade work; it is hoped however, to find occupation for a considerable number in the large greenhouse now in course of erection.

The number of male patients capable of deriving benefit from a course of graded labour is limited, and averages between 40 and 50 at any one time.

#### *Graded exercise.*

As a preliminary to routine graded labour, walks up to six miles daily are first taken. The type of graded labour practised is similar to the Paterson system—somewhat modified to meet the more advanced cases admitted.

*Grade I.—Indoor.*—Potting and pricking out plants, pruning vines, general light greenhouse work. This has been found suitable occupation for advanced or elderly cases.

*Outdoor.*—Light sweeping, hand weeding, raking leaves, pruning, picking vegetables or fruit, light painting.

*Grade II.*—Hoeing, heavy raking, planting out, grass edging, painting with a sash tool.

*Grade III.*—Hedge clipping, using a sickle, light carpentering work.

*Grade IV.*—Using a small fork or spade, mowing lawns with a twelve-inch mower (two men).

*Grade V.*—Using a heavy spade or fork, path repairing and making, mowing lawns with an 18-inch mower (two men) or a 24-inch mower (three men), using a nine-pound hammer for breaking stones.

The time occupied in this work is three hours daily, with the exception of two afternoons when patients are allowed out. There is no work carried out on Saturdays.

The grade work is under the supervision of the Senior Resident Medical Officer, the tasks being allocated by the head gardener under his direction.

#### *Greenhouses.*

These have been utilised to their full extent as a means of providing occupation for the elderly or more advanced cases.

#### *Open-air Workshop.*

The workshop was formed by fixing a screen, composed of jointed doors, in front of No. 3 open-air shelter. Each door is composed of three sections, and is capable of being folded back so as to allow the front of the building to be quite open.

The two trades practised are cabinet making and boot repairing, the services of two patients being utilised for instructional purposes, each being paid a small bonus.

When the workshop was initiated it was hoped that it would be possible to train ex-service men, in order that they might proceed to a special training centre after they had completed a satisfactory period of treatment. With this object in view only men who had reached the high grades of out-door work were admitted.

As far as the original purpose was concerned, the scheme has not been a success. This is due to the following facts:—

(1) The Ministry of Labour Training Centres do not welcome Tuberculous ex-service men, nor are such centres suitable environment for them.

(2) At the moment it is not possible to hold out any prospect of a definite future for these patients.

The establishment of a Training Colony, as suggested by the Ministry of Health, would go far to minimise the objection in Statement No. (2), though it would of course be necessary to have, as a corollary, the establishment of village settlements where definite co-operative work could be carried out.

At the present time the workshop is of value, inasmuch as the work undertaken can be modified so as to form a definite stage in the graded labour scheme, and it provides useful occupation for certain chronic cases who would otherwise have nothing with which to fill their days.

There has been a considerable number of instances in which patients have left the hospital against advice.

In the cases of advanced disease, the reasons given are :—

- (1) The absence of appreciable progress.
- (2) Cold weather.

In the cases of early disease, the reasons given are :—

- (1) Patient feels quite well enough to work.
- (2) Patient resents the necessary discipline of a sanatorium and wants more freedom.

In women patients the difficulties at home with regard to the care of children frequently lead to premature discharge.

In early cases, especially amongst male patients, there is a lack of appreciation of the fact that to obtain satisfactory results from treatment a certain measure of self-discipline is necessary.

The percentage of ex-service men absconding or being discharged for grave breach of rules is much greater than that obtaining amongst civilian patients.

In the majority of instances this can only be attributed to the inevitable reaction against any form of discipline, even if such is largely voluntary and of a mild character.

Many such patients have been readmitted during the year, several having been in the institution on three or four occasions during the twelve months.

*Recreation.*—Concerts have been given regularly throughout the winter and my thanks are due to the parties who have so kindly given their services. By the courtesy of Messrs. Gaumont it has been possible to give a weekly cinematograph entertainment during the winter months.

The Patients' Library has been established on a sound basis, and by the courtesy of the Chief Librarian of Manchester it has been possible to materially increase the number of volumes available and to form a special section available for the female patients.

#### *Treatment—Special Methods of.*

Tuberculin has been used for diagnostic purposes throughout the year, and I hope to make a report on its value in subsequent reports, in collaboration with the Senior Tuberculosis Officer, who will furnish reports on the patients so tested.

Injections of Sodium Morrhuate, as recommended by Sir Leonard Rogers, have been used in suitable cases, but the small amount of experience gained so far does not warrant any definite conclusions being drawn therefrom.

*Garlic* has been used in various forms with no appreciable results.

Intra laryngeal injections of Eucaine in alcohol have been very successful in relieving the severe pain and dysphagia of certain types of Laryngeal Tuberculosis.

#### *Statistics.*

Patients in hospital, January 1st, 1919 .. ..	249
Admitted during the year .. .. .	896
Total treated .. .. .	1,145
Total discharged .. .. .	729
Total deaths .. .. .	172
Remaining in hospital, December 31st, 1919 ..	*244

\* Includes two patients from R.D. of Bucklow.

*Cases are doubly classified according to the following method :—*

*Stage 1.*—Disease of slight severity, limited to small areas of one lobe, that, for instance, in the case of infection of both apices, does not extend beyond the spine of the scapula and the clavicle, or, in case of affection of one apex, frontal, beyond the second rib.

*Stage 2.*—Disease of slight severity, more extensive than 1, but affecting at most the volume of one lobe, or severe disease extending at most to the volume of one-half lobe.

*Stage 3.*—All cases extending beyond 2, and all such with considerable cavities. By disease of slight severity is to be understood disseminated foci manifested by slight dulness, unclear, rough, or weak vesicular, vesico-bronchial or broncho-vesicular breathing, and fine and medium râles. By severe disease, compact infiltration recognised by great dulness, very weak bronchial, indefinite, breathing, with or without râles. Considerable cavities to be recognised by tympanitic sound, amphoric breathing, and extensive coarse consonating râles, come under stage 3. Pleuritic dulness, if only of a few centimetres extent, is to be left out of account ; if it is considerable, pleuritis should be specially mentioned under Tuberculosis complications.

*The patients are also classified as follows :—*

1. Cases in which the disease can be diagnosed or is strongly suspected, but in which there is no evident impairment of the working capacity.
2. Cases of recent onset with some impairment of the working capacity, but without marked evidence of ill-health.
3. Cases of recent onset with evidence of acute illness.



4. Cases of a longer history of illness. In some of these cases permanent arrest of the disease may be hoped for, but in the majority restoration to full working capacity for more than a comparatively short period is not to be looked for.

5. Cases in which there is permanent loss of working capacity. Many of these cases live for a considerable period in a condition of chronic illhealth.

6. Cases in which a fatal termination within six months is probable.

### *Females.*

The number of patients discharged during the year was 179.

TABLE SHOWING CLASSIFICATION ON DISCHARGE OF CASES SUFFERING FROM PULMONARY TUBERCULOSIS. TOTAL, 162—FEMALES.

Class	1	2	3	4	5	6
1	14	3	3	..	..	..
2	1	10	2	5	..	..
3	..	..	1	44	49	30

Sputum examined of all cases showing chest signs.

Ages	ADMISSIONS.		DISCHARGES.	
	T B +	T B -	T B +	T B -
5-14	1	2	..	3
15-24	39	21	37	23
25-34	26	30	25	31
35-44	27	12	21	18
45 up	11	2	10	3
Totals ..	104	67	93	78

Twelve patients showed no signs of active disease.

Five were suffering from non-Pulmonary Tuberculosis.

*Complications amongst 162 cases of Pulmonary Tuberculosis :—*

Tubercle of Larynx.. .. .	5	
Tubercular Peritonitis .. .. .	9	
Tubercular Rib .. .. .	1	
Addison's Disease .. .. .	1	
Pregnancy .. .. .	2	
Valvular Heart Disease .. .. .	4	
Rheumatoid Arthritis .. .. .	2	33
Cervical Adenitis .. .. .	3	
Albuminuria .. .. .	2	
T.B. Hip .. .. .	1	
Pneumothorax .. .. .	1	
Psoas Abscess .. .. .	1	
Tuberculosis of Fallopian Tube .. .. .	1	

*Males—Ages 15-24.*

The number of patients discharged during the year was 94.

CLASSIFICATION ON DISCHARGE.

..	I	2	3	4	5	6
I	23	..	..	..	..	..
2	..	..	5	11	..	..
3	...	..	..	16	19	7

Ten patients showed no evidence of active Tuberculosis.

Three patients suffered from non-Pulmonary Tubercle.

Of 48 patients who had positive sputum on admission, in seven the Tubercle Bacilli were absent at discharge.

*Males, 25-34.*

The number of patients discharged during the year was 146.

## CLASSIFICATION ON DISCHARGE.

..	I	2	3	4	5	6
I	II	..	..	..	..	..
2	..	I2	23	..	..	..
3	..	..	..	42	44	6

Eight patients showed no evidence of active Tuberculosis.

Of 102 patients who had positive sputum on admission, in six the Tubercle Bacilli were absent on discharge.

*Males, 35-44.*

The number of patients discharged during the year was 180.

## CLASSIFICATION.

..	I	2	3	4	5	6
I	I7	..	..	..	..	..
2	..	3	4	20	..	..
3	..	..	..	76	38	4

Fifteen patients showed no evidence of active Tuberculosis.

Three patients suffered from non-Pulmonary Tubercle.

Of 104 patients who had positive sputum on admission, in eight the Tubercle Bacilli were absent on discharge.

Males, 45 and over.

The number of patients discharged during the year was 130.

..	1	2	3	4	5	6
1	10	..	..	..	..	..
2	..	..	2	9	..	..
3	..	..	..	58	36	4

Eleven patients showed no evidence of active Tuberculosis.

Of 81 patients who had positive sputum on admission, in three the Tubercle Bacilli were absent on discharge.

The number of patients discharged during 1919 who were treated by graded labour was 181.

TABLE SHOWING NUMBER OF MALE PATIENTS CAPABLE OF PERFORMING GRADED WORK DISCHARGED DURING 1919.

Ages	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Totals
15-24	5	7	6	7	4	29
25-34	6	11	12	22	14	65
35-44	14	12	6	9	6	47
45 up	3	14	8	6	9	40
	28	44	32	44	33	181

Complications.—Pulmonary Tuberculosis males discharged in 1919 :—

Tubercle of Larynx	Bronchiectasis	Albuminuria	Valvular Heart Disease	Malaria	Scarlet Fever
19	1	3	4	5*	1

\* In one case the malarial parasite was found.



Six cases of non-Pulmonary Tuberculosis :—

Tubercular Hip .. .. .	4	} Discharged improved.
Tubercular Peritonitis .. ..	1	
Spinal Cases .. .. .	1	

The number of deaths during the year was 172, representing a death-rate of 15 per cent. The deaths were made up of 115 males and 57 females.

TABLE SHOWING COMPLICATIONS IN FATAL CASES.

Uncom- plicated	Tubercle Bacilli Larynx	Tubercle Bacilli Meningitis	Fatal Hæmo- pysses	Pneumo- thorax	Tubercle Bacilli Enteritis	Tubercle Bacilli of Bone	Diabetes	Malignant Growth of Lung	Valvular Heart Disease	Sarcoma
Males—115										
70	15	9	9	1	3	1	1	2	3	
Females—57										
43	2	2	4	..	3	2	..	1	..	..

### Laboratory.

Number of specimens of Sputum examined .. ..	1,811
Number in which Tubercle Bacilli were found ..	972
Number in which Tubercle Bacilli were not found ..	839
Number of other examinations :—	
Blood .. .. .	27
Special examination of Urines .. ..	132
The number of Autopsies performed was .. ..	27

### Dental Department.

Extractions .. .. .	214
Fillings .. .. .	8
Scalings .. .. .	11
Dentures .. .. .	13
Repair of Dentures .. .. .	20

### Grounds.

During the year the Sanatorium grounds have been laid out, extensive shrubberies have been made, and all previously waste ground converted into lawns. All this work has been done under the direct supervision of the Farm Bailiff, to whom much credit is due for the results achieved.

*Staff.*

Special courses of lectures have been held on Tuberculosis, in which all aspects of Tuberculosis work have been considered. These lectures have been well attended.

My thanks are due to the Resident Medical Officers and all members of the Nursing Staff for their loyal work and co-operation throughout the year.

## ABERGELE SANATORIUM.

REPORT FOR THE YEAR ENDING DECEMBER 31ST, 1919.

BY DR. A. G. M. GRANT, MEDICAL SUPERINTENDENT.

During the year ending December 31st, 1919, 123 patients were admitted to the Sanatorium, including one re-admission, and 124 were discharged. There were, in addition, four children admitted to Pen-y-Coed Bungalow, and a similar number was discharged. Three of these were much improved (spine, two; knee joint, one), while the remaining one (multiple bone lesions) showed no improvement.

The following table shows a classification according to age and sex of the cases under treatment :—

Ages	Males		Females	
	Admitted	Discharged	Admitted	Discharged
0 to 4 ..	..	..	..	..
5 „ 14 ..	2	2	2	2
15 „ 24 ..	23	30	6	10
25 „ 34 ..	28	28	10	11
35 „ 44 ..	27	26	10	6
45 „ 64 ..	15	11	3	2
65+ .. ..	..	..	..	..
Total ..	95	97	31	31

Table 2 shows a classification of the immediate results of treatment in the discharged pulmonary cases.

(a) Patients in whose sputum Tubercle Bacilli were found:—

	No. of Cases	Disease Arrested	Much Improved	Improved	Stationary or Worse	Died
Stage I. . .	2	..	2	..	..	..
„ II. . .	2	..	..	2	..	..
„ III. . .	38	..	15	9	14	..
Total . .	42	..	17	11	14	..

(b) Patients in whose sputum Tubercle Bacilli were not found:—

	No. of Cases	Disease Arrested	Much Improved	Improved	Stationary or Worse	Died
Stage I. . .	47	28	16	2	1	..
„ II. . .	19	5	11	3	..	..
„ III. . .	13	..	8	4	1	..
Total . .	79	33	35	9	2	..

One patient was too short a time in residence to allow of classification, while two were not considered Tuberculous. Bronchitis, one; and Bronchiectasis, one.

Two patients underwent Artificial Pneumothorax treatment, and both made fairly satisfactory progress.

Intra-muscular injections of saccharose—Aflegmatolo—as introduced by Professor C. Monaco, of Rome, were given a trial, but the results did not justify the continuance of the treatment. None of the patients benefited by it. An initial dose of 5 c.c. was recommended, but with it the two first cases showed an acute rise of temperature, one reaching 104.2°F. and the other 101.2°F. eight hours after the second injection. Beyond a feeling of sickness there was no other discomfort associated with this pyrexia. Afterwards 1 c.c. was given

as the initial dose and the amount gradually increased, but there were many interruptions owing to rises of temperature. The highest dose reached was 8 c.c. in a patient who had had 42 injections during a course of treatment extending over seven weeks. In two the complexion, which was dull and sallow, seemed to temporarily clear up ; in none was there a diminution in the amount of expectoration, but rather an increase with the doses which it was found could be tolerated ; nor was there a rise in blood pressure, as claimed, either immediately as a result of the injection or permanently as a result of the treatment.

The routine treatment was based, as in previous years, on the principle of rest and graduated exercise.

Table 3 shows a classification of the patients according to the stage of treatment reached before discharge, with the respective average gain in weight :—

Stage of Treatment	Number of Cases	Average gain in Weight
No work	20 (8 not weighed)	7 $\frac{3}{4}$ lbs.
Work for 1 hour	14	7 $\frac{1}{2}$ „
Work for 2 hours	38	8 $\frac{1}{4}$ „
Work for 3·4 hours	52	10 „

Of the discharged patients, 105 gained in weight, the average gain being 10lbs. ; 10 lost in weight, with an average loss of 2 $\frac{1}{4}$ lbs. ; 1 remained stationary ; while 8 were not weighed.

Observations on blood pressure were made throughout the year. Readings were taken on examination after admission, and in cases requiring special care the effect of short graduated walks was noted. As a routine, records were generally taken twice a week, before and after work of those in the advanced grades of labour, such as general gardening. It was found that those who were doing well showed an increase in systolic pressure after work, while those with active disease, or for whom the work was too heavy, registered a fall. The blood pressure rises with improvement, but very slowly, and, judging from a series of about 600 observations, one is forced to the conclusion that the mounting of the grades of labour should be slow and that very few tuberculous patients are fit for heavy work, as indicated by a systolic increase. The psychological effect was marked. Patients considered it registered the measure of their fitness, and if the observations were worth making it was worth their



while working conscientiously to find their measure. With advancing disease the blood pressure falls, and those grouped under Stage I. register a higher level and approach nearer the normal than those in Stage III. There are many individual exceptions, but as a general rule this decline in pressure holds.

The following table shows the average blood pressure readings of 110 male patients in the Sanatorium, grouped according to the Turban-Gerhardt classification, with the normal maximal level for the corresponding ages. These cases were all non-febrile and able for exercise :—

	No. of Cases	No. with T. B. in Sputum	Ave age Age	Average Systolic Pressure	Average Diastolic Pressure	Average Pulse Rate per minute	Normal Systolic Pressure calculated as to age according to Faight's Formula
Stage I. ..	31	1	33	125	78	71	126
„ II. ..	28	10	30	121	77	75	125
„ III. ..	51	39	30	116	76	80	125

The effect of Artificial Pneumothorax on the blood pressure was noted during the last three years, and 53 observations on 7 patients were made on the immediate effect of the introduction of filtered air into the pleural cavity. On 13 occasions there was noticed a fall in systolic pressure, and on 3 a rise, while on the remaining 37 no definite change was registered. These varied results may be accounted for by the degree of collapse of the lung, but excitement preceding the operation is a disturbing factor in some patients, tending to raise the blood pressure, as illustrated by the following examples :—

	Day Before	Day of Artificial Pneumothorax	Day After
Case A—Systolic Pressure .. ..	104	120	108
Diastolic Pressure .. ..	82	84	86
Case B—Systolic Pressure .. ..	135	156	130
Diastolic Pressure .. ..	80	84	80

The effect of exercise showed no difference in the blood pressure from what might be expected in similar cases not undergoing this special treatment,

*Farm.*

In April Pen-y-rallt was purchased. This farm of 75 acres adjoins Plas Uchaf, and the whole estate now extends to about 350 acres. Extensive alterations have been carried out on the newly-acquired farm buildings, and the dwelling-house has also been repaired. In the event of additions being made to the existing Sanatorium this increase in farm land will prove most useful.

*Forest.*

About 20,000 young pines were planted to replace trees that had been felled. Wood was extensively used for fuel in the Sanatorium throughout the year.

An ample supply of milk, vegetables, and fruit was obtained from the farm and garden for the needs of the Sanatorium.

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## HOUSING.

Practically no steps were taken by way of closing insanitary houses in 1919. In the house famine which then existed, and now exists, it was felt to be impossible to close houses.

It is to be remembered that great improvements had been effected in connection with housing, of which we are now reaping the benefit. No house-to-house inspection record was made during this year. Early in 1920 four Special Housing Inspectors were appointed and placed in the housing department, whose duty it is to inspect and keep a record of all houses inspected, which is transferred to cards. But all District Inspectors have now been instructed to carry out house-to-house inspection and keep a record.

Reports on housing operations have been given in consecutive reports of the Medical Officer of Health, but a special statement will be made next year.

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## PARTICULARS RELATING TO THE OPERATIONS OF THE CLEANSING DEPARTMENT.

The Medical Officer of Health is indebted to Mr. Williamson, Superintendent of the Cleansing Department, for the following particulars relating to the operations of the Cleansing Department during the year ending 31st March, 1920 :—

Cleansing Department,  
Town Hall, Manchester,  
August 10th, 1920.

Dear Sir,

The administration of the Cleansing Department of the City of Manchester is under the supervision of a Superintendent, with a staff of about 60 officials and nearly 1,800 workmen.

The extent of the Department's operations may be gathered from the following general statistics :—

The gross expenditure of the Department during the year ended March 31st, 1920, was £406,193, and the gross income £102,010, the net cost being £304,183.

The wages of the Department for the year amounted to £258,140, of which £115,635 represented bonus.

For Departmental purposes the Cleansing of the City is divided into a Nightsoil Section and a Scavenging Section.

The work of the Nightsoil Section includes the emptying of old privies and pail closets, and the collection and disposal of household refuse ; whilst the Scavenging Section deals principally with the cleansing of the streets and disposal of refuse collected therefrom.

### *Nightsoil Section.*

There are within the City 154,430 dwelling-houses, 4,511 lock-up shops, and 4,478 workshops. From these premises during the past year there was collected and disposed of 174,956 tons of ashes, 5,778 tons of nightsoil and pail contents, 14,371 tons of warehouse and trade refuse, 3,237 tons of slaughter-house refuse, 4,020 tons of stable manure, and 1,691 tons of fish refuse.

Previous to 1872 the midden-privy system was in operation, but the Corporation then decided upon the introduction of what is known as the pail-closet system, the scarcity of water preventing the adoption of the water-carriage method. Since the water difficulty has been solved, the conversion of pail-closets into water-closets has been proceeded with, and is rapidly nearing completion. There are now only 217 privies and 1,326 pail-closets within the City.

In later years it was decided to replace the wooden ash-boxes by galvanized iron receptacles with lids, and there are now 153,962 of the latter ; the number of wooden ash-boxes being reduced to 4,827.

TABLE SHOWING NUMBERS OF PRIVIES, PAILS, ASH-BOXES, AND ASH-BINS FOR PERIOD 1911-1920.

Year	No. of Privies (with Ashpits)	No. of Pails	No. of Wooden Ash-boxes	No. of Galvanised Iron Ash-bins with Lids
1911	5,218	15,624	56,494	74,494
1912	1,982	10,000	50,421	88,762
1913	292	3,850	41,645	101,239
1914	218	2,128	31,875	112,843
1915	157	1,710	24,677	121,191
1916*	236	1,671	16,653	142,107
1917	230	1,665	12,469	146,246
1918	230	1,633	11,230	147,616
1919	217	1,327	8,011	151,609
1920	217	1,326	4,827	153,962

\* District of Withington incorporated.

The speedy disposal of excreta collected from the privy and pail system is, of course, one of the first considerations of the Department. This is done by two methods. The first by mechanical treatment at the Department's Holt Town Works, which acts as a receiving centre for most of the nightsoil collected in the northern and eastern parts of the City ; the second by distribution to the farm lands outside the City, through the Water Street Depot, which is the receiving centre for the nightsoil from the southern and western districts.

The collection of domestic refuse contained in the galvanized bins and wooden ash-boxes is done by vans and carts during the day time. On entering the top floor of the Holt Town Works, these vehicles move in a circle around what is termed the "stage," in the roadway of which are receiving hoppers on a level with the floor, into which the paper, ashes, garbage, etc., are emptied from the back portion of the van, such material falling on to a long inclined



riddle. This operation separates the fine ashes and dust from the combustible portion, the latter being burnt under eleven 60-h.p. Galloway boilers, which provide all the steam required in the works for power and other purposes.

The clinker residue from the boilers and furnaces at this and other depots is used as the base of an excellent mortar, for which a ready sale is effected. The receipts from the mortar mills of the Department during last year were £2,682. This method, however, only deals with a small quantity of the clinkers produced, the bulk of them being sent on to the Committee's Chat Moss and Carrington Estates, and utilised in road making, etc.

The contents of the pails (which are made of galvanized iron fitted with lids hermetically closed by means of a cross spring and rubber washer) are tipped into a double hopper, the pails being immediately cleansed and disinfected with a specially prepared disinfectant made by mixing flue dust and carbolic acid. Passing through the double hopper, the liquid contents of the pails are separated from the solid refuse by revolving riddles, and run into storage tanks fitted with mechanical agitators on the intermediate floor. From the store tanks the "stock" is run by gravitation, as desired, into a series of steam-jacketed driers, fitted with moveable arms, situated on the bottom floor of the works, where it is reduced to solid form, a little sulphuric acid being added to fix the ammonia. The obnoxious steam and gases given off during the drying process are first passed through a water tower, and afterwards drawn through the fires of two specially constructed cremator furnaces, the process rendering the vapours and gases perfectly innocuous. The solid manure obtained is stored in a large warehouse, whence it is taken to be fortified, thoroughly mixed, filled into bags, and finally packed into the railway wagons standing on the siding on the top floor of the works. The fortification of the manure is a point worthy of special mention, as the Corporation guarantee it to contain 6 per cent. of ammonia (in the same form as in guano), 7 per cent. citric soluble phosphate, 1 per cent. potash salt, and 38 per cent. organic matter. To accomplish the manufacture of this commodity, a competent chemist, with properly equipped laboratory, tests the manure made each day, and calculates the necessary quantity of ground bones and dried fish refuse necessary to bring the manure to the guaranteed standard. The ground bones are obtained from carcasses not fit for the digesters, and the fish refuse from the City markets.

The manure is known all over the United Kingdom as the "Manchester Corporation Concentrated Manure," and finds a ready sale at £7 10s. per ton on rail at the works. During the year ended March, 1920, 728 tons of concentrated manure were made and sold. In consequence of the alterations of pail-closets into water-closets the receipts of the Department from this source have been considerably reduced, the sale of concentrated manure having fallen from 7,000 tons (receipts, £20,519) in 1883 to 728 tons (receipts, £4,081) during the past season.

The contents of the pails and refuse arriving by vans, carts, etc., at the Water Street Depot on the river Irwell are dealt with by a different method from that obtaining at Holt Town. The pail contents refuse and nightsoil conveyed into the depot (after the refuse has been examined and such articles as old tins, bottles, etc., put on one side for subsequent sale) is loaded into barges, of which the Committee own a fleet of nine, and thence dispatched down the Ship Canal to the Committee's estates at Chat Moss and Carrington for disposal to the farm tenants.

Included in this section of the Department's work is the collection and disposal of household refuse other than that from pail-closets and privies just described. The contents of about 153,962 galvanized iron ash-bins and 4,827 wooden ash-boxes are collected regularly, both by vans and ash-carts. This material is disposed of by burning in boiler furnaces and destructors (the steam power for plant purposes being obtained in this way), by cartage of riddled ashes to tips, and by mixing the finer portion of the screened ashes with the nightsoil dispatched to the Chat Moss and Carrington Estates.

#### *Scavenging Section.*

The task confronting the Cleansing Department in keeping clean the streets, footpaths, etc., of the City is not made easier by the fact that the large number of works and factories, the enormous vehicular traffic, and the damp atmosphere combine to create more unpleasant conditions than are experienced in most other towns.

For efficiency of organisation the cleansing of the streets is arranged into districts, each supervised by an inspector, with depots, tips, and railway sidings, etc., contiguous to the districts cleansed, for the disposal of the refuse collected.

There are within the City  $616\frac{1}{2}$  miles of streets requiring the attention of the Department. The main roads and principal thoroughfares are swept once each day, and the less important streets one, twice, or thrice a week. In wet or dirty weather the streets in the centre of the City are also swilled in the early morning, and the footpaths cleansed by india-rubber scrapers (or squeegees).

There are 57 sweeping machines at work every day, and in dry weather 60 watering carts are engaged in keeping down the dust. During the past 12 months 84,580 tons of sweepings, litter, etc., were gathered and disposed of.

#### *Snowfall.*

Special arrangements are made by the Department to cope with sudden falls of snow in winter time. In the autumn the services of every hireable cart in the City is reserved and allotted to a certain district, with instructions to the owner, in the event of a heavy snowfall, to attend at a specified depot.

These carts and every available vehicle belonging to the Department are assigned to certain roads and streets, and are set the task of restoring the foot-paths and roadways to their ordinary condition. In addition to the Department's regular staff, large numbers of unemployed have in the past been engaged to assist in clearing the streets. These casuals, in gangs of 20, under a competent ganger, work in shifts of six hours. During the winter of 1909-1910 16,000 extra men were thus employed, at an extra cost to the Department of £6,000.

*General.*

The total weight of material dealt with by the Nightsoil and Scavenging Sections of the Department during the year was 296,802 tons, being equal to nearly 1,000 tons per working day.

TABLE SHOWING THE DISPOSAL OF MATERIAL COLLECTED TWELVE MONTHS  
ENDING MARCH, 1920.

	Tons	Tons
Nightsoil to Department's Estates .. .. .	16,977	
„ „ Farmers .. .. .	236	
„ (Pail contents) from Military Camps to Farmers .. .. .	377	
	<hr/>	17,590
Stable Manure to Department's Estates .. .. .	1,097	
„ Farmers .. .. .	2,707	
	<hr/>	3,804
Clinkers to Department's Estates .. .. .	5,669	
„ „ Contractors .. .. .	63	
„ „ Allotments .. .. .	380	
„ and Rubbish to Tip .. .. .	66,890	
	<hr/>	73,002
Sweepings to Estates .. .. .	345	
„ „ Farmers .. .. .	5,115	
„ (rough) to Tips .. .. .	34,570	
„ to Allotments .. .. .	4,374	
	<hr/>	44,404
Rubbish (Ash-box Refuse) to Estates .. .. .	32,842	
„ „ to Withington Sewage Works	9,731	
	<hr/>	42,573
Market Garbage to Farmers' Carts .. .. .		1,121
Concentrated Manure and Humogen .. .. .		788
Sand on Streets .. .. .		2,451
Stone Chippings on Wood Pavements .. .. .		312
Mortar .. .. .		6,581
Old Irons and Tins, Glass, Soap, Grease, and Waste Paper .. .. .		584
Burning and Drainage .. .. .		103,592
		<hr/>
Total .. .. .		296,802

The cleansing, washing, and removal of all refuse and garbage from the various wholesale and retail markets and abattoirs in the City is undertaken by the Department at the expense of the Markets Committee, necessitating the collection and disposal of 4,321 tons of material.

The Department has 33 depots and yards, 42 destructor cells, and 21 boilers used for the destruction of refuse, 5 private railway sidings, 4 estates of 3,725 acres, 599 horse vehicles, 1 motor street sweeper, 1 motor ash lorry, 4 locomotives, 109 broad-gauge railway wagons, 254 light railway trucks and bogies, 25 miles of light railway, 9 barges and a steam tug, and a stud of 400 horses.

The Carrington and Chat Moss Estates were acquired by the Manchester Corporation in 1886 and 1895 respectively for the purpose of solving the problem of disposing of the great quantities of nightsoil and similar rapidly decomposing matter other than that dealt with at the Holt Town Works.

The estates have an area of 3,609 acres, and are composed almost wholly of peat moss, which has the virtue of absorbing more manure per acre than any other kind of land.

The amount of refuse taken to the estates since they were purchased by the Corporation is as follows:—

Chat Moss Estate .. .. 1,140,366 tons in 22 years.

Carrington     ,,     ..     ..     982,179     ,,     32     ,,

The number of farm tenants on these estates is 55, occupying 52 farmsteads and 3 extensive nurseries.

The Corporation erected the farmsteads, together with an adequate supply of town's water. The market value of the estates has considerably increased since their purchase, chiefly through cultivation and to the proximity of the Manchester Ship Canal.

I remain,

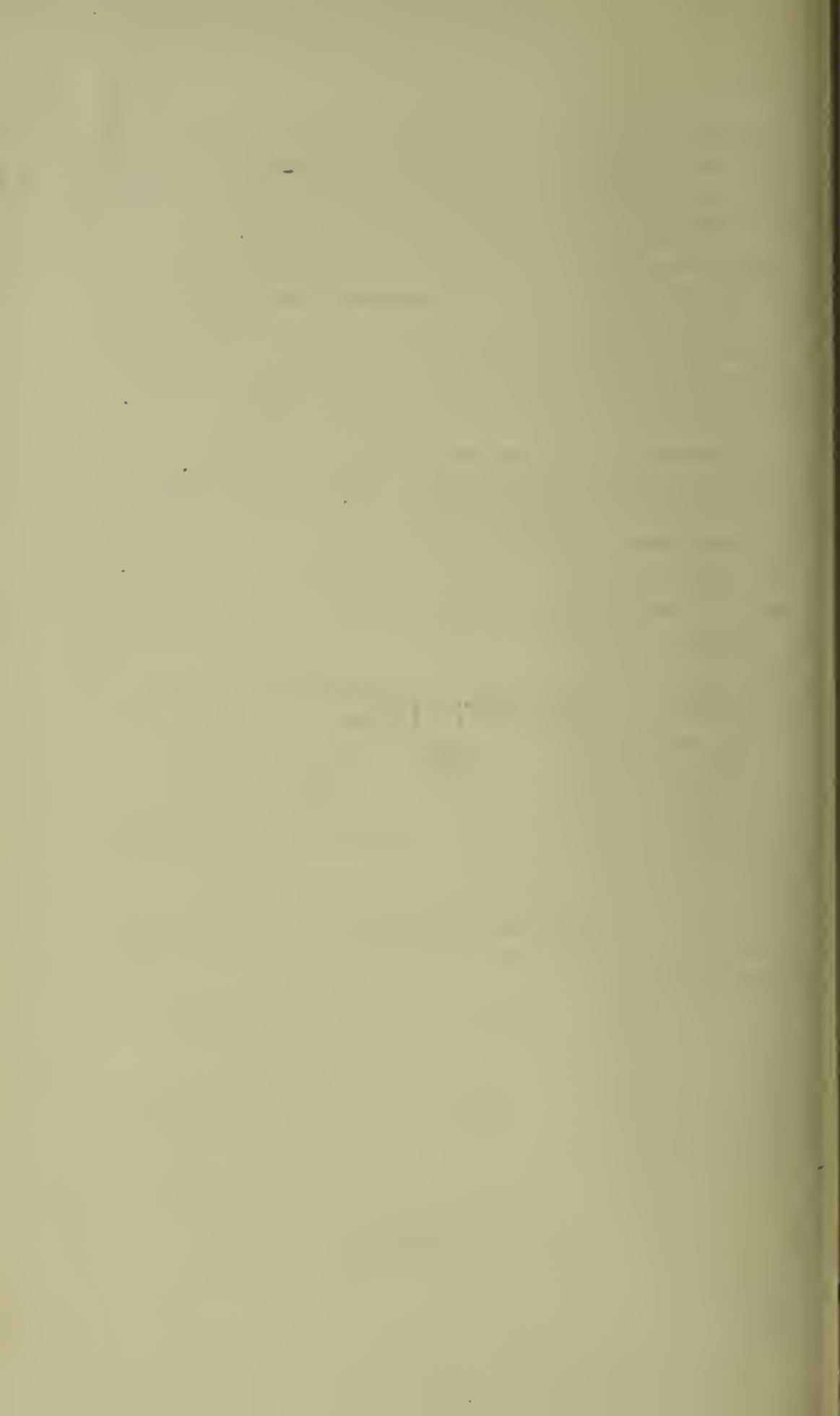
Yours faithfully,

R. WILLIAMSON,

*Superintendent.*

Dr. James Niven,  
Medical Officer of Health,  
Manchester.





# TABLES.

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TABLE A.—MANCHESTER, 1919.

CAUSES OF DEATH AT DIFFERENT LIFE PERIODS IN THE 53 WEEKS OF THE YEAR  
PERSONS.—(MALES AND FEMALES.)

CAUSES OF DEATH	AGES AT DEATH														Total
	All Ages	UNDER 5 YEARS		5	10	15	20	25	35	45	55	65	75	85	
		0	1	10	10	10	10	10	10	10	10	10	10		
		to	to	to	to	to	to	to	to	to	to	to	to		
		1	5	10	15	20	25	35	45	55	65	75	85		
All Causes .....	10854	1362	745	276	197	290	284	767	945	1339	1661	1772	1051	10	
A.—GENERAL DISEASES.....	4453	753	355	130	107	190	188	477	491	626	576	409	143		
B.—LOCAL DISEASES.....	5434	429	353	120	72	85	83	257	412	664	1038	1194	652		
C.—OTHER SPECIFIED DIS...	2	1	...	...	...	...	...	...	...	...	...	...	1		
D.—ILL-DEFINED DISEASES...	616	139	7	1	...	...	...	...	2	2	8	135	241		
E.—VIOLENT DEATHS .....	349	40	30	25	18	15	13	33	40	47	39	34	14		
A.—General Diseases.															
Smallpox.. { Vaccinated .....	1	...	...	...	...	...	...	...	...	...	1	...	...		
{ Not Vaccinated .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
{ No Statement.....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Cowpox .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Chickenpox .....	1	...	1	...	...	...	...	...	...	...	...	...	...		
Measles .....	104	26	69	8	...	1	...	...	...	...	...	...	...		
Epidemic Rose Rash .....	1	...	1	...	...	...	...	...	...	...	...	...	...		
Scarlet Fever.....	26	...	12	10	4	...	...	...	...	...	...	...	...		
Typhus .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Plague.....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Relapsing Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Influenza .....	1127	38	96	36	24	63	56	235	137	162	116	113	50		
Whooping Cough.....	40	13	23	4	...	...	...	...	...	...	...	...	...		
Mumps .....	3	...	...	1	1	...	...	...	...	...	...	...	1		
Diphtheria and Memb: Croup	41	4	21	10	3	1	2	...	...	...	...	...	...		
Poliomyelitis .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Cerebro-spinal Fever .....	11	4	2	2	1	...	...	...	2	...	...	...	...		
Simple Cont: Fever.....	2	1	...	1	...	...	...	...	...	...	...	...	...		
Enteric Fever .....	19	...	...	...	3	4	...	5	5	1	1	...	...		
Asiatic Cholera .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Epidemic Diarrhoea .....	40	32	6	1	...	...	...	...	...	...	...	1	...		
Diarrhoea .....	130	102	19	1	...	...	1	...	1	...	...	3	3		
Dysentery .....	2	...	...	...	...	...	...	1	...	...	1	...	...		
Malarial Fever.....	3	...	...	...	...	...	...	3	...	...	...	...	...		
Trench Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Pellagra .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Hydrophobia .....															
Glanders.....															
Anthrax .....															
Tetanus .....															
Syphilis .....	52	42	1	1	...	...	...	1	3	1	3	...	...		
Gonorrhœa, Strict: Urethra...	12	...	...	...	...	...	...	...	1	6	1	2	2		
Puerperal.. { Septicæmia .....															
{ Pyæmia .....															
{ Phlegmasia Dol: .....															
{ Fever .....															
Infective Endocarditis .....	5	...	...	...	1	1	1	2	...	...	...	...	...		
Epidemic Pneumonia )	4	...	...	...	...	...	1	2	...	...	1	...	...		
Pneumonic Fever        )	...	...	...	...	...	...	...	...	...	...	...	...	...		
Erysipelas .....	22	1	...	1	...	2	2	2	4	5	3	2	...		
Septicæmia (not puerp: ) .....	2	...	2	...	...	...	...	...	...	...	...	...	...		
Pyæmia (not puerp: ) .....	1	...	...	...	...	...	...	...	...	...	1	...	...		
Phlegmon .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Phagedæna .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Other Septic Diseases .....	4	...	...	1	...	...	...	...	1	...	...	2	...		
Tubercular Phthisis .....															
Isthists .....	878	2	14	19	26	79	87	152	199	174	91	27	7		
	73	...	...	...	...	9	5	10	13	21	9	6	...		

TABLE A, 1919—continued.

CAUSES OF DEATH	All Ages	AGES AT DEATH													
		UNDER 5 YEARS		5	10	15	20	25	35	45	55	65	75	85 and upwards	
		0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85		
A.—General Diseases—															
continued															
Tubercular Meningitis.....	82	13	35	17	8	5	1	1	1	1	...	...	...	...	...
Tubercular Peritonitis.....	47	4	11	4	12	6	3	4	1	2	...	...	...	...	...
Tubercles Mesenterica.....	7	2	2	...	1	...	...	1	...	...	1	...	...	...	...
Tubercles of other organs.....	40	...	3	3	3	5	8	4	4	5	4	1	...	...	...
General Tuberculosis.....	59	5	15	3	10	6	4	2	4	7	1	1	1	...	...
Scrophulous.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Parasitic Diseases.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Starvation.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Starvation.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism, Delirium Tremens.....	13	...	...	...	...	...	...	1	1	3	5	3	...	...	...
Opium, Morphia Habit.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Opium Poisoning.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Industrial { Lead.....	1	...	...	...	...	...	...	...	1	...	...	...	...	...	...
Poisoning { Phosphorus.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Poisoning { Arsenic, &c. ....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheum: Fever, Acute Rheum:.....	42	1	2	3	3	4	6	6	3	7	4	3	...	...	...
Rheumatism of Heart.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Chronic Rheumatism.....	22	...	...	...	...	...	1	...	...	1	8	7	3	2	...
Rheum: Arthritis, Rheum: Gout.....	15	...	...	...	...	...	...	...	1	1	5	7	1	...	...
Gout.....	2	...	...	...	...	...	...	...	...	...	...	1	1	...	...
Carcinoma.....	681	...	...	...	...	1	...	17	69	171	219	151	51	2	...
Carcinoma.....	48	2	1	1	2	...	1	5	5	9	15	5	2	...	...
"Cancer," Malignant Disease.....	146	...	...	1	...	...	...	2	11	27	57	35	12	1	...
Ectodermic.....	12	4	7	1	...	...	...	...	...	...	...	...	...	...	...
Erythema.....	3	1	...	...	...	...	...	1	...	...	...	1	...	...	...
Emphysema, Hæm: Diathesis.....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Anæmia, Leucocythæmia.....	53	...	1	1	1	1	2	3	3	11	15	11	4	...	...
Diabetes Mellitus.....	71	...	...	...	2	1	1	4	6	11	14	26	5	1	...
Other Constitutional Diseases.....	2	...	...	...	2	...	...	...	...	...	...	...	...	...	...
Immature Birth.....	324	324	...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital Defects.....	65	62	3	...	...	...	...	...	...	...	...	...	...	...	...
Injury at Birth.....	33	33	...	...	...	...	...	...	...	...	...	...	...	...	...
Infantile.....	27	27	...	...	...	...	...	...	...	...	...	...	...	...	...
Want of Breast Milk.....	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...
Feeding.....	15	7	8	...	...	...	...	...	...	...	...	...	...	...	...
Others of Early Infancy.....	2	2	...	...	...	...	...	...	...	...	...	...	...	...	...
B.—Local Diseases.															
1.—NERVOUS SYSTEM.															
Inflammation of Brain.....	65	14	24	7	3	3	3	2	6	2	...	...	1	...	...
Softening of Brain.....	10	...	...	...	...	...	...	...	...	...	3	4	3	...	...
General Paraly: of Insane.....	57	...	...	...	...	...	...	2	17	24	11	3	...	...	...
Insanity (not puerperal).....	55	1	2	1	...	1	2	3	3	10	24	7	1	...	...
Chorea.....	4	...	1	...	1	1	1	...	...	...	...	...	...	...	...
Epilepsy.....	77	1	2	1	2	7	4	12	6	15	12	9	5	1	...
Convulsions.....	56	50	5	1	...	...	...	...	...	...	...	...	...	...	...
Laryngismus Stridulus.....	5	1	3	1	...	...	...	...	...	...	...	...	...	...	...
Locomotor Ataxy.....	10	...	...	...	...	...	...	...	2	2	3	2	1	...	...
Dis: of Spinal Cord.....	40	...	1	2	1	1	...	3	4	1	9	17	1	...	...
Neuritis.....	5	...	...	...	...	...	1	...	...	...	1	3	...	...	...
Brain Tumour.....	28	1	1	3	1	4	1	3	5	3	2	3	1	...	...
Encephalitis Lethargica.....	9	...	...	...	1	1	1	1	2	1	1	1	...	...	...
Nervous System (other Dis: ).....	11	...	...	...	...	...	...	...	2	3	2	2	2	...	...
C. DISEASES OF SPECIAL SENSE ORGANS.															
Otitis, Mastoid Disease.....	26	3	5	3	3	1	2	4	2	1	1	1	...	...	...
Epistaxis, Nose Disease.....	1	...	...	...	...	...	...	1	...	...	...	...	...	...	...
Ophthalmia, Eye Disease.....	1	...	...	...	...	...	...	...	...	1	...	...	...	...	...



TABLE A, 1919—continued.

CAUSES OF DEATH	AGES AT DEATH													
	All Ages	UNDER 5 YEARS		5	10	15	20	25	35	45	55	65	75	85
		0	1	10	10	10	10	10	10	10	10	10	10	10
		10	10	10	15	20	25	35	45	55	65	75	85	95
<b>3. DISEASES OF HEART.</b>														
Valvular Dis: Endocarditis ....	519	...	4	11	17	11	15	30	60	72	123	134	40	
Pericarditis .....	6	...	...	1	...	1	...	1	1	...	1	...	1	
Hypertrophy of Heart.....	...	...	...	...	...	...	...	...	...	...	...	...	...	
Angina Pectoris .....	24	...	...	...	...	...	...	...	3	2	12	5	2	
Dilatation of Heart .....	90	...	2	...	...	...	...	2	4	8	24	34	15	
Fatty Degen: of Heart .....	27	...	...	...	...	...	...	...	5	3	8	7	3	
Syncope, Heart Disease.....	384	2	1	1	5	4	6	6	23	61	103	121	46	
<b>4. DIS: OF BLOOD VESSELS.</b>														
Cerebral Haemorrhage.....	400	2	...	...	...	1	1	8	21	51	95	137	81	
Apoplexy, Hemiplegia.....	83	1	...	...	...	...	...	...	1	12	15	32	19	
Aneurism .....	16	...	...	...	...	...	...	...	1	8	5	...	2	
Senile Gangrene .....	18	...	...	...	...	...	...	...	...	...	3	8	7	
Embolism, Thrombosis .....	56	...	...	...	...	...	1	4	2	6	14	18	10	
Phlebitis .....	2	...	...	...	...	...	...	...	...	1	1	...	...	
Varicose Veins .....	2	...	...	...	...	...	...	...	...	...	1	1	...	
Blood Vessels (Other Diseases)	141	...	...	...	...	...	1	1	2	9	34	47	39	
<b>5. DIS: OF RESPIRATORY SYS:</b>														
Laryngitis .....	6	1	2	...	...	...	...	1	1	1	...	...	...	
Membr: Laryng: (Not Diphth:)	...	...	...	...	...	...	...	...	...	...	...	...	...	
Croup .....	1	...	1	...	...	...	...	...	...	...	...	...	...	
Larynx (Other Dis:)	1	...	...	1	...	...	...	...	...	...	...	...	...	
Bronchitis .....	1,277	117	60	9	3	2	4	15	51	112	247	357	262	
Pneumonia { Lobar-Croupous.	287	16	19	12	5	15	14	41	37	58	39	21	9	
{ Broncho-Lobular.	564	139	173	34	9	4	5	22	33	31	45	39	27	
"Pneumonia" .....	126	9	10	5	1	3	7	14	19	19	22	13	4	
Empysema, Asthma .....	29	...	...	...	1	...	...	2	1	7	7	9	2	
Pleurisy .....	19	...	...	1	2	1	2	3	2	4	4	...	...	
Fibroid Disease of Lung.....	2	...	...	...	...	...	...	...	...	...	1	1	...	
Respiratory Dis: (Other) .....	38	...	...	1	...	...	...	2	4	2	6	12	10	
<b>6. DIS: OF DIGESTIVE SYS:</b>														
Tonsillitis, Quinsy .....	8	...	3	2	1	...	...	1	...	...	...	...	1	
Mouth, Pharynx .....	13	5	...	1	1	...	...	3	2	...	1	...	...	
Gastric Ulcer.....	58	...	...	...	...	1	1	9	16	13	14	4	...	
Gastric Catarrh.....	5	4	...	...	...	...	...	...	1	...	...	...	...	
Stomach (Other Dis:)	45	19	6	2	...	1	...	2	2	3	4	3	3	
Enteritis.....	13	...	...	...	...	1	...	1	1	2	1	3	3	
Gastro-Enteritis.....	11	...	3	1	...	...	...	...	1	2	3	1	...	
Appendicitis, Perityph: .....	37	...	3	3	3	8	...	6	5	4	...	4	1	
Hernia .....	36	2	2	...	...	...	...	...	2	6	7	12	4	
Intestinal Obstruct:.....	31	2	1	1	...	1	...	1	2	3	7	8	4	
Other Diseases of Intestines ...	22	7	1	...	...	...	1	2	1	3	4	1	2	
Peritonitis .....	19	1	2	...	2	1	1	4	2	3	1	2	...	
Cirrhosis of Liver.....	31	...	2	...	...	...	...	...	2	10	10	5	2	
Liver and Gall Bladder (O.D.).	34	11	2	1	...	...	...	3	...	2	7	5	1	
Biliary Calculi .....	8	...	...	1	...	...	...	1	2	1	1	2	...	
Digestive System (Other Dis:)	26	10	1	1	...	...	...	1	2	2	3	4	2	
<b>7. DIS: OF LYMPHATIC AND DUCTLESS GLANDS.</b>														
Spleen, Disease of.....	...	...	...	...	...	...	...	...	...	...	...	...	...	
Lymphat: Syst: (Other Dis:)	25	3	2	1	1	...	...	3	4	7	2	2	...	
Thyroid Body (Other Dis:)	3	...	...	...	...	...	...	...	...	...	2	1	...	
Addison's Dis: (Dis: of) .....	2	...	...	...	...	...	...	1	...	1	...	...	...	
<b>8. DISEASES OF URINARY SYSTEM.</b>														
Nephritis Ac: Uremia .....	87	...	7	1	5	4	1	8	10	17	15	16	3	
Ch: Bright's Dis: Albumin: ...	188	...	...	2	...	3	2	10	14	42	54	42	17	
Calculus .....	6	...	...	...	...	...	...	1	1	1	...	3	...	
Bladder and Prostate Dis: ..	51	...	...	...	...	...	...	...	2	4	15	21	9	
Urinary Syst: (Other Dis:)	9	...	1	...	...	...	...	...	3	...	2	1	2	

TABLE A, 1919—concluded.

CAUSES OF DEATH	All Ages	AGES AT DEATH													
		UNDER 5 YEARS		5	10	15	20	25	35	45	55	65	75	85 and upwards	
		0 to 1	1 to 5	5 to 10	10 to 15	15 to 20	20 to 25	25 to 35	35 to 45	45 to 55	55 to 65	65 to 75	75 to 85	85 and upwards	
DISEASES OF GENERATIVE SYSTEM.															
Ovarian Tumour .....	9	...	...	...	...	...	...	2	2	2	1	2	...		
Per Dis: of Ovary .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Uterine Tumour .....	2	...	...	...	...	...	...	1	...	1	...	...	...		
Per Dis: of Uterus and Vagina	6	...	...	...	...	1	1	2	2	...	...	...	...		
Dis: of Menstruation .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Per: and Mam: Orgs: (other)	4	...	...	...	...	1	...	2	...	1	...	...	...		
DISEASES OF PREGNANCY AND CHILDBIRTH.															
Abortion, Miscarriage .....	2	...	...	...	...	...	...	2	...	...	...	...	...		
Periperal Mania .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Periperal Convulsions .....	12	...	...	...	...	2	8	2	...	...	...	...	...		
Centæ Præv: Flooding .....	2	...	...	...	...	1	...	1	...	...	...	...	...		
Per Ac: of Preg: & Childbirth	14	...	...	...	1	1	6	5	1	...	...	...	...		
DISEASES OF LOCOMOTOR SYSTEM.															
Paralysis, Necrosis .....	1	...	...	...	...	...	...	...	...	...	1	...	...		
Arthritis, Periostitis .....	6	...	...	2	1	1	...	...	1	1	...	...	...		
Locomotor Sys: (Other) .....	12	...	1	5	3	2	...	...	1	...	...	...	...		
DISEASES OF THE SKIN.															
Ulcer, Bed sore .....	2	...	...	...	...	...	...	...	...	...	1	1	...		
Eczema .....	1	1	...	...	...	...	...	...	...	...	...	...	...		
Scrophulous .....	2	2	...	...	...	...	...	...	...	...	...	...	...		
Other Diseases (other) .....	13	4	...	1	...	...	2	...	1	1	3	1	...		
Other Specified Diseases	2	1	...	...	...	...	...	...	...	...	...	1	...		
Ill-defined and not Specified Diseases.															
Idiocy, Debility .....	144	137	7	...	...	...	...	...	...	...	...	...	...		
Age .....	464	...	...	...	...	...	...	...	1	7	134	241	81		
Idiocy, Ascites, Anasarca .....	1	...	1	...	...	...	...	...	...	...	...	...	...		
Idiocy .....	3	...	...	...	...	...	...	2	1	...	...	...	...		
Idiocy .....	1	...	...	...	...	...	...	...	...	1	...	...	...		
Idiocy .....	2	1	...	...	...	...	...	...	...	...	1	...	...		
Idiocy (cause unascertained) ..	...	...	...	...	...	...	...	...	...	...	...	...	...		
Idiocy .....	1	1	...	...	...	...	...	...	...	...	...	...	...		
E.—Violent Deaths.															
ACCIDENT.															
Trains and Quarries .....	1	...	...	...	...	...	1	...	...	...	...	...	...		
Vehicles { On Railways .....	5	...	...	...	...	2	...	1	1	1	...	...	...		
{ In Streets .....	52	...	5	8	4	...	2	5	5	8	11	4	...		
Ships, Boats, Docks (not Drowning) .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Working Operations .....	...	...	...	...	...	...	...	...	...	...	...	...	...		
Machinery .....	5	...	...	1	1	...	...	1	2	...	...	...	...		
Weapons and Implements .....	3	...	...	...	...	1	1	1	...	...	...	...	...		
Burns and Scalds .....	56	2	21	11	4	1	...	3	3	4	2	4	1		
Idiocy, Poisonous Vapours .....	9	...	...	...	...	1	1	1	4	2	...	...	...		
Idiocy .....	30	...	1	3	4	...	...	4	4	8	3	2	1		
Idiocy .....	44	37	...	...	2	4	...	...	...	...	1	...	...		
Idiocy .....	62	...	1	1	2	2	3	...	11	8	9	14	10		
Idiocy .....	3	1	...	...	...	...	1	...	...	...	1	...	...		
Idiocy .....	26	...	2	2	...	5	3	3	3	2	2	4	...		
HOMICIDE.															
Idiocy .....	3	...	...	...	...	...	...	1	2	...	...	...	...		
SUICIDE.															
Idiocy .....	50	...	...	1	1	...	15	6	10	9	6	2	...		
EXECUTION.															

TABLE B.—MANCHESTER, 1919.  
CAUSES OF DEATHS AT DIFFERENT LIFE PERIODS—MALES.

Classes	CAUSES OF DEATH	All Ages	AGES AT DEATH—IN YEARS																
			UNDER 5 YEARS			5	10	15	20	25	35	45	55	65	75	85	95	100	
			0	1	5	to 10	to 15	to 20	to 25	to 35	to 45	to 55	to 65	to 75	to 85	to 95	to 100	and over	
			Total	1	5	10	15	20	25	35	45	55	65	75	85	95	100		
	All Causes .....	5553	797	400	144	97	133	124	330	510	755	935	883	404	4				
A	Smallpox .....	1	...	...	...	...	...	...	...	...	...	...	1	...	...	...	...		
	Measles .....	59	13	41	4	...	1	...	...	...	...	...	...	...	...	...	...		
	Scarlet Fever .....	9	...	6	2	1	...	...	...	...	...	...	...	...	...	...	...		
	Typhus Fever .....	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Whooping Cough .....	16	3	11	2	...	...	...	...	...	...	...	...	...	...	...	...		
	Diphtheria, Memb: Croup .....	21	4	10	5	1	...	1	...	...	...	...	...	...	...	...	...		
	Ill-defined Fever .....	1	...	...	1	...	...	...	...	...	...	...	...	...	...	...	...		
	Enteric Fever .....	10	...	...	...	1	3	...	...	4	1	1	...	...	...	...	...		
	Influenza .....	551	23	60	20	10	29	26	96	76	84	62	47	18	...	...	...		
	Epidemic Diarrhoea .....	24	20	4	...	...	...	...	...	...	...	...	...	...	...	...	...		
B and C	Diarrhoea, Dysen., Simple Chol. ....	84	66	14	...	...	...	...	1	...	...	1	1	1	...	...	...		
	Venereal Affections .....	43	25	...	1	...	...	...	...	3	7	3	2	2	...	...	...		
	Erysipelas .....	10	...	...	1	...	...	2	1	1	2	1	2	...	...	...	...		
	Pyæmia, Septicæmia .....	5	...	...	...	...	1	2	...	...	...	...	2	...	...	...	...		
	Puerperal Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Other Zymotics .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Tuberc. Periton: Tabes Mes: ...	32	4	9	4	6	2	2	3	...	1	1	...	...	...	...	...		
	Tubercular Meningitis .....	43	11	17	8	3	2	...	...	1	1	...	...	...	...	...	...		
	Phthisis .....	545	1	6	5	6	38	36	72	140	139	76	26	...	...	...	...		
	Tuberculous Dis. (other) .....	58	4	10	3	10	6	3	5	7	7	2	1	...	...	...	...		
D	Parasitic Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Alcoholism .....	11	...	...	...	...	...	...	...	1	3	4	3	...	...	...	...		
	Rheumatic Fever .....	20	...	1	3	...	2	3	1	1	5	2	2	...	...	...	...		
	Cancer .....	409	...	...	2	...	...	...	6	24	103	164	90	19	...	...	...		
	Premature Birth .....	186	186	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Congenital Defects .....	48	47	1	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Epilepsy .....	42	...	2	1	...	3	2	8	2	7	9	4	3	...	...	...		
	Convulsions .....	31	29	2	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Nervous Syst: (other) .....	178	9	23	9	4	5	5	9	23	30	35	21	5	...	...	...		
	Cereb: Haem: Apoplexy, Hemip: ..	215	1	...	...	...	...	1	2	8	29	50	82	40	...	...	...		
E	Heart and Blood Vessel Dis: ..	596	2	2	5	10	8	9	15	54	79	165	177	65	...	...	...		
	Pleurisy .....	11	...	...	...	1	1	...	2	1	4	2	...	...	...	...	...		
	Croup .....	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Bronchitis .....	651	71	29	6	2	1	3	9	33	59	135	187	106	...	...	...		
	Pneumonia .....	522	100	102	25	11	8	11	32	56	69	62	29	16	...	...	...		
	Respiratory Dis: (other) .....	39	...	1	1	1	...	...	2	3	6	8	12	5	...	...	...		
	Cirrhosis .....	17	...	...	...	...	...	...	2	5	7	2	1	...	...	...	...		
	Digestive Syst: (other) .....	183	32	17	6	5	5	3	20	17	19	26	22	10	...	...	...		
	Urinary Syst: (other) .....	216	...	3	3	4	5	2	8	16	40	58	56	21	...	...	...		
	Generative Organs .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...		
D	Other specified Diseases .....	184	42	11	9	11	2	4	14	9	19	23	33	7	...	...	...		
	Marasmus and Atrophy .....	88	82	6	...	...	...	...	...	...	...	...	...	...	...	...	...		
	Old Age .....	165	...	...	...	...	...	...	...	...	...	4	60	78	...	...	...		
	Other Ill-defined Causes .....	7	1	...	1	...	...	...	...	2	1	1	1	...	...	...	...		
E	Violence .....	178	21	11	17	9	10	9	12	23	24	23	16	3	...	...	...		
	Homicide .....	2	...	...	...	...	...	...	...	...	2	...	...	...	...	...	...		
	Suicide .....	41	...	...	...	1	1	...	12	3	9	9	5	1	...	...	...		

TABLE C.—MANCHESTER, 1919.  
CAUSES OF DEATHS AT DIFFERENT LIFE PERIODS—FEMALES.

CAUSES OF DEATH	All Ages Total	AGES AT DEATH—IN YEARS																
		UNDER 5 YEARS					5	10	15	20	25	35	45	55	65	75	85	95 and upwards
		0	1	2	3	4	to 5	to 10	to 15	to 20	to 25	to 35	to 45	to 55	to 65	to 75	to 85	to 95 and upwards
		10	10	10	10	10	10	15	20	25	35	45	55	65	75	85	95	upwards
All Causes .....	5301	565	345	132	100	157	160	437	435	584	726	889	647	124				
Smallpox .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Measles .....	45	13	28	4	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Scarlet Fever .....	17	...	6	8	3	...	...	...	...	...	...	...	...	...	...	...	...	...
Typhus Fever .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Whooping Cough .....	24	10	12	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diphtheria, Membr: Croup .....	20	...	11	5	2	1	1	...	...	...	...	...	...	...	...	...	...	...
Ill-defined Fever .....	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Enteric Fever .....	9	...	...	...	2	1	...	5	1	...	...	...	...	...	...	...	...	...
Influenza .....	576	15	36	16	14	34	30	139	61	78	54	66	32	1	...	...	...	...
Epidemic Diarrhoea .....	16	12	2	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Diarrhoea, Dysentery, Simple .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Cholera .....	48	36	5	1	...	...	1	...	1	...	...	...	...	2	2	...	...	...
Venereal Affections .....	21	17	1	...	...	...	...	1	1	...	1	...	...	...	...	...	...	...
Erysipelas .....	12	1	...	...	...	2	...	1	3	3	2	...	...	...	...	...	...	...
Pyæmia, Septicæmia .....	11	...	2	1	1	...	...	4	1	...	2	...	...	...	...	...	...	...
Puerperal Fever .....	34	...	...	...	...	1	6	13	14	...	...	...	...	...	...	...	...	...
Other Zymotics .....	1	...	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Tubercular Periton: Tabes Mes. ....	22	2	4	...	7	4	1	2	1	1	...	...	...	...	...	...	...	...
Tubercular Meningitis .....	39	2	18	9	5	3	1	1	...	...	...	...	...	...	...	...	...	...
Phthisis .....	406	1	8	14	20	50	56	90	72	56	24	7	7	1	...	...	...	...
Tuberculous Diseases (other) ...	43	1	8	3	3	5	9	1	2	5	3	2	1	...	...	...	...	...
Parasitic Diseases .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Alcoholism .....	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Rheumatic Fever .....	22	1	1	...	3	2	3	5	2	2	2	1	...	...	...	...	...	...
Cancer .....	466	2	1	...	2	1	1	18	61	104	127	101	46	2	...	...	...	...
Premature Birth .....	138	138	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Congenital defects .....	44	42	2	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Epilepsy .....	35	1	...	...	2	4	2	4	4	8	3	5	2	...	...	...	...	...
Convulsions .....	25	21	3	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Nervous System (other) .....	121	8	9	5	3	6	4	5	18	16	21	21	5	...	...	...	...	...
Cerebral Hæmorrhage, Apoplexy, and Hemiplegia .....	268	2	...	...	...	1	...	6	14	34	60	87	60	4	...	...	...	...
Heart and Blood Vessel Diseases .....	689	...	5	8	12	8	14	29	47	91	164	198	100	13	...	...	...	...
Pleurisy .....	8	...	...	1	1	...	2	1	1	...	2	...	...	...	...	...	...	...
Croup .....	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Bronchitis .....	626	46	31	3	1	1	1	6	18	53	112	170	153	31	...	...	...	...
Pneumonia .....	455	64	100	26	4	14	15	45	33	39	44	44	24	3	...	...	...	...
Respiratory Diseases (other) .....	37	1	1	1	...	...	...	3	3	4	6	10	7	1	...	...	...	...
Cirrhosis .....	14	...	2	...	...	...	...	...	...	5	3	3	1	...	...	...	...	...
Digestive System (other) .....	183	29	7	7	2	8	...	14	22	25	27	27	11	4	...	...	...	...
Urinary System (other) .....	125	...	5	...	1	2	1	11	14	24	28	27	10	2	...	...	...	...
Generative Organs and Childbirth .....	51	...	...	...	...	1	6	15	17	5	4	1	2	...	...	...	...	...
Other specified Diseases .....	163	24	16	8	4	4	2	8	10	18	26	29	11	3	...	...	...	...
Marasmus and Atrophy .....	56	55	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Old Age .....	299	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Other Ill-defined Causes .....	1	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Violence .....	118	19	19	8	8	4	4	6	10	11	7	12	9	1	...	...	...	...
Homicide .....	1	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...
Suicide .....	9	...	...	...	...	...	...	...	3	3	1	...	1	1	...	...	...	...



TABLE D.

CITY OF MANCHESTER, 1919.—CAUSES OF DEATH IN INFANCY AND CHILDHOOD.

CAUSES OF DEATH	UNDER ONE YEAR			Total under One Year	ONE AND UNDER FIVE YEARS				Tot and Fiv Year
	Under 3 months	3-6 months	6-12 months		1-	2-	3-	4-	
All Causes .....	820	193	349	1,362	350	171	135	89	2,1
Measles .....	...	2	24	26	37	18	11	3	
Scarlatina .....	...	...	...	...	1	3	7	1	
Whooping Cough .....	2	3	8	13	12	6	5	...	
Diphtheria..... (Memb: Croup)	...	...	4	4	5	4	5	7	
Fever (various forms) .....	1	...	...	1	...	...	...	1	
Diarrhoeal Diseases .....	71	32	31	134	20	5	...	...	1
Syphilis .....	28	8	6	42	...	...	1	...	
Tabes Mesenterica and Tuberc. Peritonitis	1	...	5	6	4	3	4	2	
Tubercular Meningitis .....	...	...	13	13	12	14	4	5	
Tuberculosis (other).....	...	2	5	7	14	8	6	4	
Premature Birth .....	318	6	...	324	...	...	...	...	3
Teething .....	...	3	4	7	7	...	1	...	
Convulsions .....	36	7	7	50	4	1	...	...	
Nervous Diseases (other)...	5	4	9	18	16	7	6	5	
Lung Diseases .....	66	54	162	282	156	50	38	21	5
Atrophy, Marasmus .....	103	25	9	137	6	1	...	...	1
Found Dead in Bed (over- laid)	19	3	3	25	...	...	..	...	
Suffocation .....	6	4	2	12	...	...	...	...	
Violence (other forms) .....	...	...	3	3	4	7	9	10	
Ill-defined Causes.....	1	1	...	2	...	...	...	...	
Unclassified .....	163	39	54	256	52	44	38	30	4

TABLE G, 1919.—POPULATION, AREA, DENSITY. TOTAL BIRTHS AND DEATHS,  
WITH BIRTH AND DEATH RATES.

[INSTITUTION POPULATIONS, BIRTHS AND DEATHS, DISTRIBUTED.]

STATISTICAL DIVISIONS	Estimated Population	Area in Acres	Persons to an Acre	BIRTHS		DEATHS		Natural Rate of Increase	Mean Death Rate 1909-1918
				Total	Rate per 1,000	Total	Rate per 1,000		
City of Manchester .....	778,229	20,799	38	13,932	17·62	10,854	13·73	3·89	15·95
Manchester Township.....	100,310	1,646	60	2,588	25·40	2,115	20·76	4·64	23·99
North Manchester .....	228,673	7,321	32	3,817	16·43	2,678	11·53	4·90	13·57
South Manchester .....	449,246	11,832	38	7,527	16·49	6,061	13·28	3·21	14·98
ancoats .....	37,621	400	93	956	25·02	774	20·25	4·77	24·18
entral .....	16,636	748	21	378	22·37	363	21·48	0·89	24·50
St. George's .....	46,053	498	91	1,254	26·81	978	20·91	5·90	23·64
heetham .....	47,203	919	52	671	13·99	498	10·39	3·60	11·48
rumpsall .....	11,352	733	16	166	14·40	134	11·62	2·78	12·62
lackley .....	17,456	1,840	10	205	11·56	201	11·34	0·22	12·75
arpurhey .....	18,312	193	96	329	17·69	231	12·42	5·27	13·98
oston .....	32,734	1,297	26	431	12·96	311	9·35	3·61	10·45
ewton Heath .....	45,782	1,350	34	840	18·06	583	12·54	5·52	15·67
radford .....	26,427	288	92	613	22·84	357	13·30	9·54	16·88
eswick .....	12,399	96	130	271	21·52	162	12·86	8·66	16·70
layton .....	17,008	605	29	291	16·84	201	11·63	5·21	12·90
rdwick .....	38,978	509	76	797	20·13	586	14·85	5·33	16·56
penshaw .....	34,076	581	59	649	18·75	423	12·22	6·53	15·85
orton (West) .....	26,501	318	83	599	22·25	394	14·64	7·61	16·51
usholme and Kirk .....	51,261	1,412	37	601	11·54	546	10·49	1·05	10·91
horlton-upon-Med .....	52,583	646	81	1,028	19·25	996	18·65	0·60	19·09
ulme .....	60,804	477	127	1,450	23·48	1,140	18·46	5·02	20·51
loss Side .....	39,459	421	96	488	12·18	485	12·10	0·08	12·55
ithington .....	64,357	5,728	12	745	11·40	723	11·06	0·34	10·40
orton .....	54,036	1,134	49	849	15·47	527	9·60	5·87	12·90
evenshulme .....	27,191	606	46	321	11·62	241	8·73	2·89	9·92

\* Rates calculated on 53 weeks population.

TABLE H, 1919.

BIRTHS REGISTERED IN THE CITY OF MANCHESTER, IN ITS MAIN DIVISIONS AND IN DISTRICTS; DISTINGUISHING LEGITIMATE AND ILLEGITIMATE BIRTHS, AND ALSO THE PROPORTION OF MORTALITY AMONG INFANTS OF BOTH CLASSES UNDER ONE YEAR OF AGE.

STATISTICAL DIVISIONS	BIRTHS			DEATHS UNDER 1 YEAR		PROPORTION OF DEATHS UNDER 1 YEAR PER 1,000 BIRTHS			Deaths under 1 Year per 1,000 Births
	Total	Illegitimate	Percentage of Illegitimate Births to Total Births	Total	Of Illegitimate Children	Total	Legitimate	Illegitimate	
City of Manchester ...	13,932	952	6·8	1,362	151	98	93	159	1
I. Manchester Township	2,588	202	7·8	305	37	118	112	178	1
II. North Manchester ..	3,817	202	5·3	351	26	92	90	129	1
III. South Manchester ...	7,527	548	7·3	706	88	94	89	160	1
I. { Ancoats .....	956	65	6·8	113	9	118	117	138	1
{ Central .....	378	33	8·7	40	5	106	101	151	1
{ St. George's.....	1,254	104	8·3	152	23	121	112	221	1
II. { Cheetham.....	671	39	5·8	50	5	75	71	128	1
{ Crumpsall.....	166	6	3·6	15	3	90	75	500	1
{ Blackley .....	205	16	7·8	20	2	98	95	125	1
{ Harpurhey .....	329	11	3·3	27	1	82	82	91	1
{ Moston.....	431	37	8·6	44	4	102	102	108	1
{ Newton Heath.....	840	36	4·3	72	6	86	82	167	1
{ Bradford .....	613	27	4·4	58	2	95	96	74	1
{ Beswick .....	271	14	5·2	33	1	122	125	71	1
{ Clayton.....	291	16	5·5	32	2	110	109	125	1
III. { Ardwick .....	797	44	5·5	88	11	110	102	250	1
{ Openshaw .....	649	37	5·7	55	4	85	83	108	1
{ Gorton (West) .....	599	50	8·3	55	6	92	89	120	1
{ Rusholme and Kirk.	601	39	6·5	46	2	77	78	51	1
{ Chorlton-on-Med. ...	1,028	143	13·9	104	22	101	93	154	1
{ Hulme .....	1,450	109	7·5	188	21	130	125	193	1
{ Moss Side .....	488	44	9·0	24	4	49	45	91	1
{ Withington.....	745	26	3·5	47	5	63	58	192	1
{ Gorton .....	849	37	4·4	69	8	81	75	216	1
{ Levenshulme .....	321	19	5·9	30	5	93	83	263	1

TABLE J, 1919.

INFANTILE MORTALITY IN THE CITY, AND ITS THREE MAIN  
DIVISIONS.

DEATH RATES UNDER ONE YEAR PER 1,000 BIRTHS.

CAUSES OF DEATH	City of Manchester	Manchester Township	North Manchester	South Manchester
All Causes .....	97·76	117·85	91·96	93·80
Measles .....	1·87	3·48	2·36	1·06
Whooping Cough .....	0·93	0·39	1·05	1·06
Other Com: Infectious Diseases†	0·36	0·39	...	0·53
Diarrhoeal Diseases .....	9·62	11·21	8·12	9·83
Tubercular Diseases‡	1·87	3·09	1·05	1·86
Convulsions .....	3·59	2·70	2·88	4·25
Other Nervous Diseases§	1·29	1·55	1·57	1·06
Long Diseases .....	20·24	26·28	19·91	18·33
Immature Birth.....	23·26	29·37	22·27	21·66
Atrophy, &c.	9·83	11·59	9·96	9·17
Asphyxiation .....	0·86	1·55	0·79	0·66
Found dead in bed (overlaid) ...	1·79	4·64	0·26	1·59

† These are Smallpox, Scarlatina, Diphtheria, Membranous Croup, and various forms of "Fever," including the chief forms of Typhus and Typhoid.

‡ These are Phthisis, Tubercular Meningitis, Tabes Mesenterica, and General Tuberculosis (scrofula).

§ These are Meningitis, and other diseases of the Brain and Spinal Cord.

|| These are such ill-defined causes as Atrophy, Marasmus, Debility, Inanition, &c.



TABLE K, 1919.—CITY OF MANCHESTER. ANNUAL RATES OF MORTALITY PER 1,000 PERSONS LIVING AT ALL AGES, IN THE CITY OF MANCHESTER AND IN ITS STATISTICAL DIVISIONS, FROM CERTAIN DISEASES AND GROUPS OF DISEASES CALCULATED ON 53 WEEKS POPULATION.

CAUSES OF DEATH	City of Manchester	Manchester Township	North Manchester	South Manchester	City of Manchester Average of 10 years 1909-1918
All Causes .....	13·73	20·76	11·53	13·28	16·12
Smallpox .....	0·00	...	...	0·00	...
Measles .....	0·13	0·27	0·15	0·09	0·45
Scarlet Fever .....	0·03	0·07	0·03	0·03	0·11
Typhus Fever .....	...	...	...	...	...
Influenza .....	1·42	1·98	1·12	1·46	0·41
Whooping Cough .....	0·05	0·06	0·05	0·05	0·30
Diphtheria and Membr: Croup.	0·05	0·10	0·04	0·05	0·13
Ill-defined Fever.....	0·00	...	...	0·00	0·00
Enteric Fever .....	0·02	0·02	0·02	0·03	0·06
Diarrhoeal Diseases .....	0·22	0·37	0·18	0·20	0·62
Puerperal Fever .....	0·04	0·10	0·03	0·04	0·03
Erysipelas .....	0·03	0·02	0·03	0·03	0·03
Pyæmia, Septicæmia .....	0·02	0·01	0·02	0·02	0·02
Phthisis (Tuberc: Pulmon:) ...	1·20	2·40	0·94	1·07	1·61
Tubercular Meningitis.....	0·10	0·19	0·09	0·09	0·21
Tuberc: Periton: Tabes Mes...	0·07	0·15	0·05	0·05	0·12
Tuberculous Dis: (other) .....	0·13	0·24	0·06	0·13	0·17
Alcoholism .....	0·02	0·04	0·01	0·01	0·05
Cancer .....	1·11	1·51	0·95	1·10	1·00
Rheumatic Fever .....	0·05	0·10	0·08	0·13	0·06
Diabetes .....	0·09	0·05	0·10	0·09	0·10
Premature Birth .....	0·41	0·75	0·37	0·36	0·50
Nervous Diseases .....	0·55	0·78	0·42	0·56	0·75
Heart and Blood Vessels Diseases	2·24	2·56	1·83	2·37	2·37
Bronchitis .....	1·61	3·04	1·43	1·39	1·58
Pneumonia .....	1·24	2·19	1·10	1·09	1·66
Respiratory Diseases (other) ...	0·12	0·18	0·09	0·12	0·16
Digestive Organs (Diseases of)	0·50	0·57	0·45	0·51	0·66
Urinary Organs (Diseases of)	0·43	0·59	0·37	0·43	0·54
Old Age .....	0·59	0·71	0·46	0·63	0·57

Rates per 1,000 births—Puerperal Fever 2·44, Childbirth 2·15.

TABLE I., 1919.

## MANCHESTER.—CERTIFICATION OF THE CAUSES OF DEATH IN THE MAIN

## DIVISIONS AND IN DISTRICTS.

STATISTICAL DIVISIONS.	Total Deaths	Certified by			Proportion per cent. of Deaths		
		Registered Medical Practitioners	Coroner	Not Certified	Certified by		Not Certified
					Regist'd Medical Practitioners	Coroner	
City of Manchester .....	10,854	10,130	609	115	93'3	5'6	1'1
I. Manchester Township...	2,115	1,964	124	27	92'8	5'9	1'3
II. North Manchester .....	2,678	2,495	151	32	93'2	5'6	1'2
II. South Manchester .....	6,061	5,671	334	56	93'6	5'5	0'9
I. { Ancoats .....	774	718	36	20	92'8	4'6	2'6
{ Central .....	363	325	36	2	89'5	9'9	0'6
{ St. George's .....	978	921	52	5	94'2	5'3	0'5
II. { Cheetham .....	498	457	30	11	91'8	6'0	2'2
{ Crumpsall .....	134	125	7	2	93'3	5'2	1'5
{ Blackley .....	201	185	13	3	92'0	6'5	1'5
{ Harpurhey .....	231	218	12	1	94'4	5'2	0'4
{ Moston .....	311	287	18	6	92'3	5'8	1'9
{ Newton Heath .....	583	549	31	3	94'2	5'3	0'5
{ Bradford .....	357	333	22	2	93'3	6'1	0'6
{ Beswick .....	162	150	9	3	92'5	5'6	1'9
{ Clayton .....	201	191	9	1	95'0	4'5	0'5
II. { Ardwick .....	586	551	28	7	94'0	4'8	1'2
{ Openshaw ... ..	423	392	28	3	92'7	6'6	0'7
{ Gorton (West) .....	394	366	24	4	92'9	6'1	1'0
{ Rusholme and Kirk. ...	546	506	36	4	92'7	6'6	0'7
{ Chorlton-upon-Medlock	996	923	63	10	92'7	6'3	1'0
{ Hulme .....	1,140	1,058	72	10	92'8	6'3	0'9
{ Moss Side .....	485	469	12	4	96'7	2'5	0'8
{ Withington .....	723	684	31	8	94'6	4'3	1'1
{ Gorton .....	527	501	24	2	95'0	4'6	0'4
{ Levenshulme .....	241	221	16	4	91'7	6'6	1'7

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